THE MEDICAL JOURNAL OF AUSTRALIA.

Vol. II.—2ND YEAR. SYDNEY, OCTOBER 16, 1915. No. 16.

BILHARZIOSIS, COMPLICATED BY ADENO-CARCINOMA OF THE FEMALE BLADDER.

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A widow, S.A.D., aged 49 years, stewardess by occupation, consulted me in February last. Thereafter I sent her to the Royal Hospital, and am indebted to Dr. Fetherstone for the following notes, which I have condensed.

Early in 1914 she served as stewardess between Java and Singapore. Some months later, after her return to Sydney, she first observed blood in the urine, and suffered constant pain in the left lower abdominal quadrant. Blood has since been constantly present in the urine. On many occasions clots expelled from the urethra preceded the flow of urine. The urine itself was not always deeply blood-stained. Clots were frequently passed at the end of micturition. Immediately prior to admission, considerable bleeding had occurred during two days, and the patient was distinctly pale, anæmic and breathless.

Examination revealed profuse bleeding from the urethra. Tenderness was felt over the whole bladder, and, on the left side, along the course of the ureter.

The anterior vaginal wall was greatly thickened by small nodules, especially towards the uterine cervix on the right side.

On the left side, a thickened band was felt, traceable outwards from the uterine cervix.

A large mass, rounded, smooth and tender, yet easily defined, extended upwards one-third of the distance between the pubes and umbilicus.

Owing to extreme tenderness and free bleeding, difficulty was experienced in deciding whether this mass was formed by the uterus or bladder, but the former was afterwards proved to be of normal size by insertion of a sound.

A catheter specimen of urine was collected for examination, and, on the following day, it was reported that *Bilharzia* had been found.

Cocaine was applied to the urethra and the bladder irrigated with a view to cystoscopic examination. The continuous bleeding rendered satisfactory examination impossible.

Ether was then administered. In spite of further irrigation, cystoscopic examination proved futile, owing to continuous bleeding.

The bladder was found to be considerably enlarged. I suspected the presence of a large quantity of coagulated blood, or the presence of a papillomatous growth of considerable size. The soft, boggy feeling under bimanual examination created this impression.

I made a median abdominal incision, and exposed a bladder almost filling the pelvis and rising high above the pubes. The uterus occupied Douglas' pouch.

As the patient's condition was desperate, owing to bleeding, I closed the abdomen and decided to explore the bladder per vaginam.

Guided by a urethral sound, I opened the bladder and removed a large amount of blood and clot. The hæmorrhage was so profuse that no alternative presented but to pack the bladder, in hope of exercising temporary control.

Notwithstanding all efforts, the patient died two hours after return to her bed.

Dr. Emma Buckley, Honorary Pathologist, made a *post mortem* examination. She reported as follows:—

"Bladder, with both kidneys and ureter, removed intact.

"A considerable quantity of blood was found in the bladder, with blood-stained gauze left therein at operation.

"An incision had been made near the urethra.

"The bladder wall was much thickened.

"Surrounding the urethra was a thick, nodular mass. On section, this mass, about the size of a walnut and forming part of the bladder wall, proved to be of adeno-carcinoma type of growth (Prof. Welsh's report).

"The right ureter was enlarged and also the right kidney, which was pale and increased to one-half above the normal size. This increase was inflammatory in nature, and not a typical 'surgical kidney.'

"The left kidney was also inflamed.

"Urine.—An examination of the urine prior to death showed considerable amount of blood in the catheter specimen, with several oval-shaped bodies, with a pointed spine, at the end (*Bilharzia*).

"Some of these oval pointed bodies were striated, with an end spine."

Though treatment proved futile, the rarity, interest and importance of this case warrants its record.

Experience has shown that in all advanced cases treatment is limited to relief from hæmorrhage or retention of urine, which demands supra-pubic, perineal or vaginal drainage of the bladder.

Three stages of infection by this parasite, *Schistosoma haematobium* or *Distoma haematobium*, are recognized.

In the first stage, the parasite, or its eggs, enters the stomach with drinking water.

During the second stages parasites enter the portal vein system. Up to this stage symptoms are not characteristic.

During the next stage, through the anastomosis between the hæmorrhoidal veins and those surrounding the bladder, ureters and urethra, the parasites enter the latter. Herein the parasite attains adult form, and the adult deposits its eggs in the mucous

membrane of these organs. These eggs escape into the bladder, and are dischargd with the urine.

The pathological anatomy is peculiarly interesting, and is best studied in the bladder.

Hyperæmic patches, slightly raised, soon become yellowish-grey.

Thickened epithelium spreads downward into the sub-mucous tissue, and between the layers tiny cysts, visible to the naked eye, are found. Eggs are rarely visible under the microscope, but the cysts are seen to be filled with leucocytes, though, in the later stages, in some specimens, the eggs are plainly seen on section.

At first, the deeper layers of the bladder are congested and œdematous, but, at a later period, patches of ulceration and granulation occur, with great thickening of the bladder, and even polypoid excrescences may be present and fistulæ form.

Secondary infection, usually due to the colon bacillus, is frequent, and calculi often form.

Goebel drew attention to the occurrence of malignant tumours, both cancerous, as in this case, and sarcomatous, indicating advanced disease.

The urethra is frequently, as in this case, involved throughout its whole length, and stricture is common; hence the imperative demand for surgical relief of urinary retention.

The lower ureter is often similarly involved, but the upper portion is rarely infected, and the kidney almost invariably escapes.

The cardinal symptom is hæmaturia, occurring at irregular intervals, and although marked vesical irritation may precede secondary bacterial infection, this latter usually arises from instrumentation, and greatly aggravates the local distress and the constitutional effects.

I have directed attention to this case, since the disease should be ever present in our minds, placed, as we are, in close maritime contact with localities in which the infection is prevalent.

The presence of the typical eggs of the parasite, discovered by microscopic examination of the urine, affords proof of the disease.

Unfortunately, no treatment has proved curative, but travellers may guard themselves against infection by avoiding contaminated water, and may control the disease by the usual constitutional and local treatment of cystitis.

I tender grateful thanks to Professor Welsh for aid kindly given in diagnosis and examination of specimens, to Dr. Fetherstone for notes, and to Dr. Buckley for the *post mortem* examination and her report thereon.

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THE SURGERY OF THE BRACHIAL PLEXUS.

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Motor Signs of Erb-Duchenne Palsy.

The motor signs may be early or late. In the former the child cries when the arm is moved or touched. The condition is frequently diagnosed as fractured clavicle. There is a tender, indurated mass (cicatrix) formed by the torn fascia, nerves, and blood vessels lying in the region of the sixth cervical transverse process. The arm lies in the typical position of flaccid paralysis, but it is impossible to tell the degree of injury by inspection alone. It is therefore necessary to wait two months in the case of an infant or, a fortnight in the case of an adult, to see if the reaction of degeneration can be obtained. In a child, an anæsthetic will be necessary, but by this time there is usually signs of recovery, and an electrical examination may be unnecessary.

The later signs consist of more or less marked wasting. In adults, a rapid wasting of the arm and forearm muscles is met with, but in a baby, the actual size of the limb may not diminish, for the fat in a healthy baby is much greater than the bulk of the muscular tissue. Deformity occurs with more or less rigidity of the unparalysed muscles. The position of the arm is characteristic ("policeman's tip position"); it is held close to the side and the patient can neither raise it from the side nor rotate it outwards. The arm is completely adducted, and cannot be abducted, owing to the paralysis of the deltoid and supra-spinatus. It is rotated inwards by the unopposed internal rotators, as a result of the paralysis of the infra-spinatus, and to a less extent of the teres minor. The elbow is extended by the flexors of the forearm, biceps, brachialis anticus and supinator longus being powerless. The hand is pronated, since the supinator action of the biceps and supinator longus is lost, and the patient can only supinate the hand to the mid position; when the supinator brevis is paralysed as well, the hand remains completely pronated. The grasp is unimpaired, but later the fingers become clenched.

Sensory Signs.

Sensory disturbances are less definite and less extensive, and depend somewhat on the extent to which the neighbouring sound nerves overlap the area of the distribution of the damaged sensory nerves.

Epicritic sensation may be impaired in the early stage. It may be diminished or lost over an area corresponding to the distribution of the circumflex nerve. This area is heart-shaped, and has its apex at the level of the insertion of the deltoid muscle. Sensation in the outer side of the arm and forearm, along the distribution of the musculo-cutaneous nerve, may also be impaired.

Anomalous sensations, such as the sensation of tickling or pins and needles, may be present over the outer side of the arm. Causalgia of a mild degree in the areas referred to has been recorded.

Associated Lesions.

Adhesions of an intra- or extra-capsular form may involve the elbow or shoulder joint. There is a lack of growth of the whole limb, and also of the shoulder girdle. In the severest cases the shoulder may become a typical flail joint, in which case the paralysis persists, and does not clear up. In all typical cases of birth palsy, excepting those in which the injury is slight, and recovery rapid, and the severest cases,

as stated above, a tendency to posterior sub-luxation of the head of the humerus is always present. The diminished support at the back of the capsule of the shoulder joint, resulting from the paralysis of the spinati, teres minor, and posterior part of the deltoid, favours displacement of the head of the humerus. The latter, being rotated inwards, is pulled backwards by the sub-scapularis, latissimus dorsi, and possibly the pectoralis major and teres major. The arm then assumes a new position of slight flexion and abduction; the elbow is held at right angles, and the pronated forearm passes inwards, and slightly downwards, across the front of the body (stomach-ache attitude). The normal hollow below the acromium is replaced by a swelling due to the displaced head of the humerus, as in a sub-spinous dislocation. Passive movements of the shoulder, with the exception of flexion and internal rotation, are limited; extension becomes impossible, external rotation is markedly limited, and abduction is checked before the arm reaches the horizontal (Fairbank).

The following points are therefore of importance in the diagnosis of sub-luxation of the shoulder:—(1) The characteristic position of the limb; (2) the prominence of the head of the humerus under the acromium, and a corresponding hollow in front; (3) the characteristic limitation of movement of the joint; and (4) a steroscopic radiogram demonstrates the posterior sub-luxation and the undeveloped condition of the humerus and scapula.

Paralysis may be complete or incomplete. In the complete form, the anterior primary division of the fifth cervical nerve is ruptured. When the sixth cervical nerve is injured as well, the clavicular portion of pectoralis major loses its function as well (Sherren). When the fifth and sixth cervical nerves are torn at their junction, or the sixth cervical nerve is divided at operation, paralysis of the pronator teres or the extensors of the wrist is rarely met with.

The incomplete form is rare. Occasionally the deltoid and the spinati are paralysed alone, as a result of a partial rupture of the fifth cervical nerve in its upper part. In this case the reaction of degeneration in these muscles is met with, while the other muscles escape.

Diagnosis.

The differential diagnosis depends firstly on the exclusion of infantile paralysis. Apart from the history and course of the disease, infantile paralysis is, as a rule, easily recognized by the extreme degree of muscular atrophy, the absence of contracture, and the presence of a flail shoulder joint; there is no tendency for sub-luxation of the humerus to occur. Anatomically it differs in that the rhomboids are usually paralysed. This may be determined by marking out the position of the scapula. In the second place, circumflex paralysis should be considered. In this condition the spinati are not involved, and there is a definite patch of anæsthesia over the deltoid.

Other conditions from which it must be distinguished are cerebral injury, immobilization of the limb following fracture, and congenital posterior dislocation of the shoulder.

Prognosis.

If the nerves are merely overstretched, recovery is almost certain, but if the nerve trunks are completely torn across, complete recovery, though possible, is unlikely, since the cicatrization in the neighbourhood, resulting from the injury, will cause a partial or complete failure of union. Hence, whether recovery takes place or not depends upon three factors: The degree of the primary injury, the treatment carried out, and the interval elapsing between the time of injury and the institution of treatment, will govern the degree of repair. Consequently, the prognosis is, in extensive lesions, unfavourable, and it becomes imperative to adopt surgical means for the repair of the damage as early as possible. Recovery in cases with marked tenderness above the clavicle is rarely complete.

When the reaction of degeneration is present, spontaneous recovery is unlikely. Accurate apposition at the time of suture, prolonged immobilization of the shoulder and neck, and systematic persistance in the after-treatment are necessary.

Spontaneous recovery occurs in the majority of obstetric cases. According to Sherren, it takes place in 70%; Fairbank has given the recovery rate at 60%; while Warrington and Jones have found that complete recovery occurs in 33% of the cases, and partial or incomplete recovery occurs in another third. On the other hand, Bruns' figures are gloomy; out of seven cases of birth paralysis, not one recovered.

With regard to cases of Erb's traumatic palsy, however, the percentage of spontaneous recovery is usually stated to be about 40% or 50%.

Some indications of recovery are apparent within three to twelve weeks in cases in which spontaneous cure may be expected. These signs continue slowly for about two years. Partial recovery, leaving the residual paralysis to be treated surgically, is not infrequent.

The literature dealing with the result of operative treatment is scanty, the mortality being variously quoted from 5% to 25%, and the frequency of successful treatment about 30%.

No instance of complete anatomical and physiological recovery after secondary suture of the plexus has been recorded. Both Bowlby and Sherren agree that success is excluded if suture is undertaken as long as four years after injury. In those cases in which the cicatrix extends into the intervertebral foramen, the prospect of regeneration is bad. The only hope that the condition may be alleviated lies in nerve anastomosis.

Treatment.

Cases of early paralysis must be regarded as traumatic neuritis. The injured limb should be placed at rest for at least two weeks, by supporting it with a triangular sling applied to the sound shoulder, or by pinning the sleeve of the injured limb behind the neck, in order to remove the strain on the plexus. This position is most favourable for spontaneous repair. Later the electrical reactions of the muscles should be tested, and, if complete reaction of degeneration is present, an exploratory operation

should be undertaken. Complete reaction of degeneration is a condition in which there is an absence of faradic irritability of the muscles, the sluggish response to galvanism, an altered polar reaction, and a diminished excitability of the muscle. It must, however, be pointed out that complete recovery may ensue even after complete reaction of degeneration has been present. In an adult, the reactions should be tested at the end of 14 days (*i.e.*, when degeneration may be established), but in a baby, with obstetric paralysis, it is necessary to wait two to three months, as the electrical reactions are unsatisfactory before that age. They must be tested while the baby is under the influence of an anæsthetic. Care must be exercised, since, in a fat baby, a muscle may fail to respond to faradism when applied in the usual way, and yet when the muscle is stimulated by a sharp electrode thrust through the skin, or when the nerve is stimulated during an operation, a contraction of the corresponding muscle is produced.

Until conduction is restored, the two great points to pay attention to are to prevent overstretching of the paralysed muscles and contracture in the opposing muscles, and to maintain the nutrition of the parts supplied by the damaged nerve. To ensure the former the arm should be kept in the position which gives full relaxation of the paralysed muscles. The arm is abducted to 90°, and rotated outwards at the shoulder to a full extent. The forearm is flexed on the upper arm to about a right angle, and is kept in position of maximal supination, and the wrist and fingers are hyperextended. This position may be maintained by a removable plaster casing, or an inverted, T-shaped, metal splint, such as that devised by Fairbank. The nutrition of the muscles can be maintained by massage; this should be commenced as soon as all pain and tenderness have disappeared. The splints should be taken off daily, the whole of the arm and shoulder massaged, and passive movement be applied to the joints. Later, when the muscles begin to show signs of recovery, active movement should also be instituted daily. Electrical treatment, in the form of a constant current, may be used about three times a week in adults, but in the case of young children it is usually considered both unnecessary and inadvisable. Neglected cases, however, usually present internal rotation or posterior subluxation of the shoulder. If internal rotation is present, the capsule should be stretched under an anæsthetic, the arm should then be put up in the relaxed position described above, and the usual massage and passive movements carried out. Failing reduction by manipulation, the contracted parts should be divided at an open operation. Similarly, if posterior sub-luxation of the shoulder is present, it must be reduced either by manipulation or by open operation. In the late and severe cases, anterior arthrotomy should be performed, and the anterior part of the capsule with the sub-scapularis tendon freely divided. If the acromion should prove an obstacle to reduction, it should be partially or completely removed. The limb should then be put up in a relaxed position, as described.

Operative Treatment.

The first primary suture of the brachial plexus was performed by Baudens, in 1836, who sutured all the nerves of the brachial plexus except the musculo-spiral, for a sword wound in the axilla. It was not until about 60 years later that the first record of secondary suture of the brachial plexus was published (see "Secondary Suture for Complete Brachial Plexus Injury," by Thorburn, *British Medical Journal*, 1900). The first records of nerve anastomosis for obstetric palsy were published by Robert Kennedy in the *British Medical Journal* (February 7, 1903).

In exposure of the plexus, attention should be paid to the position of the patient. The patient should lie on his back, with a pad under the shoulders, with the head thrown well back and inclined to the opposite side, in order that the supraclavicular space becomes well exposed. The incision should extend from the posterior border of the sterno-mastoid at the junction of its upper and middle thirds, downwards and outwards to the junction of the outer and middle third of the clavicle. This incision has the disadvantage that it does not follow the natural lines of cleavage of the skin, and hence the scar is apt to stretch. A "collar" incision has been advocated, but this does not give as satisfactory exposure. The skin, superficial and

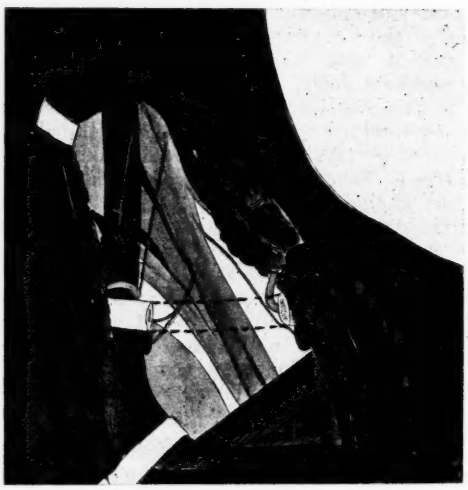

Fig. 5.
Dissection of the Brachial Plexus, showing the Deeper and Lower Trunks. The Clavicle has been divided. Modified from Prout.

deep fascia and the platysma are divided, and the transversalis colli and the suprascapular vessels, together with the external jugular vein, are ligatured in two places and divided. In exposing the plexus, the following points may be used as landmarks: The posterior border of sterno-mastoid, the omo-hyoid and the scalenus anticus muscles. The deep layer of cervical fascia lying just in front of the nerves may be found to be thickened and adherent to the underlying nerves. It may be necessary to separate these structures by dissection. The roots and plexus are

then exposed, and examined by sight, touch and by electrical stimulation. In all cases where cutting of nerve trunks is involved, faradic stimulation should be applied to the affected nerves for diagnostic purposes. The affected nerve is insulated by passing a dry vulcanite spatula beneath it; two sterilized bipolar electrodes are placed about 5 mm. apart, and a weak faradic current is employed for the stimulation (Harris and Low). The exposure of the plexus is usually easy. The smaller branches are easily seen, but in severe and late cases it may be almost impossible to identify the individual nerves in the mass of fibrous tissue. The operation under these conditions necessarily partakes of the nature of an exploratory one.

A survey of the literature reveals the fact that success has been obtained by almost any method of junction.

End-to-end junction (Kennedy) is clearly the ideal method. The object is to remove the cicatrix by transverse section above and below, at such levels as to expose normal nerve bundles in the divided ends, and then to perform secondary suture. This form of junction is only occasionally applicable, since the cicatricial surroundings increase the difficulty in stretching the nerves, and any pull on the nerve makes the suture less effective. When the gap is wide, nerve grafting or excision of the middle third of the clavicle has been recommended to enable apposition to be obtained, on the principle that an extremity which will move, even though the clavicle is absent or distorted, is preferable to a paralysed one with an intact clavicle.

In complete peripheral anastomosis (Harris and Low), an endeavour is made to bring the axis cylinders into end-to-end contact with some of the fibres of a neighbouring sound nerve. The peripheral end of the affected nerve is placed into a gap in the sound nerve produced by an oblique incision, or it is united to a flap raised from the sound nerve.

In severe cases, however, all that usually can be done is to remove the scar tissue surrounding the nerves and to incise the sheaths of the nerves longitudinally to relieve compression.

In those cases in which the lesion is close to the cord, or in which the cicatrix extends to the intervertebral foramen, nerve anastomosis is the only suitable treatment. The results, however, are unsatisfactory.

The supra-scapular nerve should always be examined to determine whether it is sound. This is important, because it supplies the external rotators of the shoulder. Paralysis of these muscles tends to posterior dislocation of the shoulder so often seen in children. It should therefore be sutured with the greatest care when ruptured.

In birth palsy, partial recovery is not infrequent. It may consequently be possible to avoid unnecessary division of nerves by inspection and testing. The fifth cervical nerve may be split into bundles, and the affected bundle ascertained. In cases of incomplete lesion of the fifth cervical nerve, it may be possible to split the nerve and excise the affected bundle, and to repair the gap by an autotransplantation, using a piece from the upper two-thirds of the radial nerve, or the affected fibres may be anastomosed to a portion of the anterior primary division of the sixth cervical nerve.

After Treatment.

The shoulder should be elevated, so that the junction is not subjected to tension. The limb is kept in this position until the wound is soundly healed. It must be remembered that when the head is approximated to the shoulder, the skin of the neck is thrown into folds. Care must be taken that these folds are separated by gauze to avoid cutaneous irritation, which would endanger aseptic healing of the wound. After the wound is healed, a steel brace should be worn for 10 to 12 weeks, to relieve the tension at the junction; the muscles should be kept relaxed and systematic massage persisted in until recovery ensues.

Palliative Operations.

If nerve anastomosis and nerve grafting fail, muscle transplantation can still be employed. It is important, if possible, to restore two movements, *viz.*, abduction of the arm and flexion of the elbow joint.

To aid abduction and to act as a substitute for the deltoid, two muscle transplantations have been used. The clavicular portion of the pectoralis major may be brought over the acromion and fixed to the atrophied deltoid, or the Hoffa-Tubby operation may be performed. This consists in freeing the clavicular portion of the trapezius and the pectoralis major from the clavicle and uniting them to form a new deltoid muscle. These operations, however, do not yield good results as far as abduction of the arm is concerned, but they have the advantage in strengthening the stability of the shoulder joint. On the other hand, Tubby's operation of freeing part of the outer head of the triceps and inserting it into the lower part of the biceps yields moderately good results, especially in regard to the restoration of the power of flexing the elbow.

F.—Lower Arm Type (Klumpke).

Flaubert called attention to the lower arm type of paralysis in 1827, but it is usually called after Klumpke, who first described it accurately. Where the roots are affected near the spinal cord, before the rami communicantes are given off to the cervical sympathetic, certain ocular changes are added, as was very fully described by Jonathan Hutchinson in 1866, in a case of stab wound of the brachial plexus.

Aetiology.

Klumpke's palsy may be caused by an overstretching of the plexus. This may occur in the so-called obstetric palsy. Traction exerted in a case of breech presentation with extended arms or to the axilla in a vertex presentation (B. Shaw) may give rise to it. In the adult type, the first dorsal root may become over-stretched. This occurs when a person, in falling, clutches at some projection. Klumpke's palsy may also be caused by a penetrating wound, or it may arise from the pressure of a growth ("Diagnosis of Nervous Diseases," by Purves Stewart, p. 291).

Anatomy.

The lesions verified by operation are few. According to Warrington and Jones, they may be intravertebral, intervertebral or extravertebral. Fibrosis is found either in the nerves before they have united to form the lower trunk or in the trunk itself.

The small muscles of the hand are paralysed, and if the eighth cervical nerve is involved, there will be paralysis of the flexors of fingers and wrist.

Protopathic sensation is lost over the inner side of the arm and forearm, and sometimes also along the ulnar border of the hand. Epicritic loss is less extensive than the protopathic; in other words, loss of sensation to a prick is greater than that to touch by cotton wool.

The symptoms referable to a disturbance of the sympathetic system include myosis, caused by paralysis of the dilator of the iris. The pupil does not dilate on the withdrawal of light, nor on application of cocaine. The cilio-spinal reflex is not obtainable. In addition, enophthalmos and small palpebral fisures may be present. The third characteristic symptom is pseudoptosis, which differs from true ptosis in that the upper lids droops, but can be elevated spontaneously. In the last place, the affected side of the face does not flush or sweat.

Signs.

The signs of the upper arm type of paralysis may be divided into early and late manifestations. Of the former, a loss of abduction, adduction and opposition of the thumb is the most prominent. It must, however, be borne in mind that these movements may be mimicked at a later stage by the long flexors of the thumb.

All true movements of abduction and adduction of the fingers are lost, but false adduction may be carried out by the extensor communis digatorum. This movement is accompanied by extension of the basal phalanges. There is inability to extend the fingers at the interphangeal joints, owing to the interossei being paralysed.

The pupil signs have already been described. The later signs comprise of wasting between the metacarpals and of the thenar and hypothenar eminences. One of the varieties of claw hand develops. The fingers become extended at the metacarpo-phalangeal joints, as a result of paralysis of the interossei, but they are not hyper-extended. They are flexed at the interphalangeal joints. The thumb becomes externally rotated, and comes more or less in line with the fingers.

Prognosis.

When the sympathetic paralysis is complete, recovery is unlikely, inasmuch as regeneration is impossible for anatomical reasons. In regard to movement, the lesion is usually situated too high to admit of direct union. It is therefore necessary to expose the plexus by temporary division of the clavicle and to anastomose the distal end of the first dorsal with the anterior primary division of the eighth cervical nerve.

G.—Intermediate Type.

The intermediate type of paralysis is usually associated with an upper arm type, but it may be observed as a residual palsy after the upper part of the plexus has recovered. It is essentially due to a lesion of the middle part of the plexus.

Anatomy.

The muscles paralysed are chiefly those supplied by the seventh cervical nerve, *viz.*, the triceps, together with the extensors of the wrist and fingers.

Signs.

The elbow is flexed, the hand lies half way between pronation and supination, and the wrist is dropped, the fingers being somewhat bent.

H.—Whole Plexus Paralysis.

Aetiology.

Paralysis involving the whole of the brachial plexus is rare. Bowlby, in his article on "Injuries to Nerves," has described nineteen cases of avulsion of the plexus, and Bristow has found references to twenty-four cases (*Annals of Surgery*, 1902). Isolated cases have been reported by Milliard, Senn, Bolton, Thorburn and others. The causes of this form of paralysis were as follows: Forcible reduction of dislocations (in 35%), falls on the shoulder (in 15%), heavy objects falling on the shoulder (in 20%), traction to the extended arm (in 10%), and other causes (in 20%).

Signs.

This paralysis depends on lesions in various situations. The motor effects of rupture of the roots are complete paralysis of the whole arm, although the rhomboids and the serratus magnus usually escape. The sensory signs include the loss of epicritis and protopathic sensation over the whole of the arm except the areas supplied by the descending branches of the cervical plexus and intercosto-humeral nerve. It is stated that communication between the nerve of Wristberg and the intercosto-humeral is never torn. Deep touch is lost over the forearm.

Paralysis of the ocular branches of the sympathetic is met with. It is not quite complete, for the pupil dilates to cocaine. This is due to the fact that some of the pupil dilating fibres enter the cervical sympathetic from the second dorsal root, which usually escapes injury (P. Stewart). If the pupil fails to dilate, the lesion has probably affected the second dorsal as well as the first dorsal root.

Occasionally the plexus becomes ruptured at levels other than that described. Under these conditions, the level of the lesion will determine whether the spinati, rhomboids, seratus magnus, pectorals, and sympathetic are involved or escape.

Infraclavicular Lesions.

The outer cord is occasionally injured in dislocations of the shoulder.

Signs.

There is no loss of movement, although the coracobrachialis, biceps, and all the muscles supplied by the median nerve, except the intrinsic muscles of the hand, are paralysed. The diagnosis of the condition must therefore be made by palpating the various tendons. The arm can be flexed in the pronated position by the supinator longus, and the extensores carpi radialis, longior and brevior muscles.

The arm can be flexed in the supinated position by a portion of the brachialis anticus. The sensation is lost on the outer side of the forearm, over an area bounded in front by a line running from the biceps tendon to the fourth finger opposite the wrist, and by an ill-defined line behind.

The posterior cord may also be injured, and a type of paralysis is produced.

Signs.

In this condition there is paralysis of the muscles supplied by the musculo-spiral and circumflex nerves.

Lastly, the inner cord may suffer injury. The paralysis resulting usually occurs in connexion with a subcoracoid dislocation, and is rarely complete.

Signs.

All the intrinsic muscles of the hand are paralysed, as well as the muscles supplied by the ulnar nerve, *i.e.*, the flexors of fingers and wrist (flexor carpi ulnarus and flexor profundus).

With incomplete lesions, the epicritic sensation is lost over the ulnar area, but with complete lesions there is also a loss of propathic sensibility over the same area.

Prognosis.

The majority of infraclavicular lesions result from dislocations of the humerus, and recovery without surgical intervention is the rule, although, according to Bruns' statistics, recovery did not result in five out of six cases.

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Reports of Cases.

APPENDICITIS IN HERNIAL SAC OF A NURSLING.

By **H. Douglas Stephens, M.D., M.S.,**
Melbourne.

On May 7, 1915, a baby boy, 3 weeks old, was brought to the Out-Patient Department of the Melbourne Children's Hospital, with a swelling in the right side of the scrotum. The mother stated that the infant had been restless and feverish during the night, and had vomited a little; the swelling had appeared in the morning, and had gradually increased in size as the day progressed, becoming redder and apparently more painful. When seen by me in the afternoon, the scrotum had the appearance and signs of an ordinary, right-sided, incarcerated, inguinal hernia so often seen in young infants, but the skin was certainly more injected, shiny and tender than is usual. No attempts at taxis had been made, nor had any local applications been used. The temperature was 100° F., and the bowels had not acted since the previous afternoon. The baby was an only child, breast-fed, and previously healthy, except that on the second day after birth the mother noticed a small lump in the right inguinal region, which disappeared on the same day, and had not since been apparent. Both testes were in the scrotum.

I operated on admission, exposing a sac containing seropurulent fluid, the appendix and the *caput cæci*. The distal half of the appendix was acutely inflamed and adherent to the caudal end of the sac by flakey lymph. The *caput cæci* and proximal end of the appendix were somewhat engorged, but not strangulated, and, on removal of the appendix, the caecum slipped back into the abdomen. The sac, which was continuous with the *tunica vaginalis*, was removed in the usual way, and the wound sewn up without drainage. A little discharge escaped from the wound on the third day, after which recovery was uneventful. When seen a month later the child was quite well and thriving.

It was not my intention to report this case, had I not, in perusing the literature of appendicitis amongst children,

happened to see the following abstract in the *Journal of Surgery, Gynaecology and Obstetrics*, March, 1913:—

"Becker: Appendicitis in a left-sided inguinal hernia in an infant (*Arch. f. Kinderh*, 1912, LIX., Nos. 1 and 2).

"According to the author, this is the only case on record where an inflamed and partially gangrenous appendix constituted the contents of the sac of a left-sided inguinal hernia in an infant two months old. Examination of the patient revealed an inflamed, hard and very tender swelling, occupying the left inguinal region. Both testes were in the scrotum. Temperature 38.8° C. The diagnosis lay between incarcerated hernia, hydrocele communicans, or abscess. After dividing the skin and fascia, a sac filled with serous fluid protruded. The gangrenous appendix was lodged in the sac. Complete recovery followed the removal of the appendix. The author ascribes the condition to an abnormally moveable caecum."

Appendicitis is undoubtedly rare in suckling infants, and, speaking without reference to records, I can only recall one other case, that of a baby aged six months, in whom I found an inflamed appendix and local abscess whilst making a post mortem examination. Exceedingly engorged appendices are not infrequent in obstructed infantile herniæ, due undoubtedly to mechanical causes; but in the case I report (aged three weeks), no obstruction was apparent, whilst inflammatory signs predominated throughout.

ORCHITIS PAROTIDEA.

By **G. W. Farmer, M.D., M.Ch., F.R.C.S. (Eng.),**
Texas, Queensland.

About two months ago a married lady consulted me, on account of a typical attack of mumps. The history in regard to the source of infection was perfectly definite.

Four weeks later I was visited by her husband, æt. 34, who was suffering from acute orchitis on the right side. There were no parotid symptoms whatsoever. He went home (some 17 miles), promising to rest and carry out my instructions regarding treatment. Four days later I was sent for to see him. On my arrival, I found that the right orchitis had almost subsided, but that the left testicle was swollen and tender. Still there were no parotid symptoms or any swelling or tenderness of the other salivary glands. Since then he has recovered completely.

It is well known that, in mumps, orchitis may precede the parotitis, but cases in which none of the salivary glands are affected at all during the course of the disease are, according to Osler, rare.

The case recorded shows the necessity in cases of orchitis of making enquiries whether there has been contact with mumps, before questioning the patient regarding venereal matters. Had I not known the patient personally, and the very clear history, I should probably have begun by asking questions which might have been very offensive to any one of a highly moral and sensitive disposition. By mere coincidence I happened, since attending this patient, to be in conversation with a selector (an old friend of my patient's), who informed me that some years ago he had an attack of swollen, painful testicle. He rushed to the nearest doctor, some fifty miles, who bombarded him with questions of such a nature that he (the patient), being of short temper and perfectly innocent of any immorality, nearly came to blows with the doctor. He then accidentally dropped the remark that two or three weeks previously he had suffered from painful swelling on both sides of his neck, of which, however, he took no notice. Peace followed after many apologies and explanations on the doctor's part. This, of course, was the gentleman's version to me, but I thought it worth stating in reference to my case.

I do not think that 50% of men in this part of the bush know of the connexion between mumps and orchitis, and quite forget the mumps part, when they rush, panic-stricken, to the nearest doctor with a swollen testicle.

Reviews.

ADVANCES IN MEDICINE AND SURGERY.

As noted in the preface, completeness of the *Medical Annual* for 1915 has not been markedly affected by the circumstances of the war, although some delay in its issue has been caused thereby.[1]

This epitome of the most recent advances in medicine and surgery, and their special branches is quite up to the high standard of its predecessors. As might be expected, some space is occupied on the subjects of naval and military surgery. The volume opens with a brief glossary of new medical terms. This is followed by Part I., "The Dictionary of Materia Medica and Therapeutics, including notes on the new British Pharmacopœia," to which is appointed an important article by H. Weppell Gadd, F.C.S., Barrister-at-Law, on the medico-legal responsibility of medical and pharmaceutical practitioners to familiarize themselves with the changes in the text of the pharmacopœia. Then follows a chapter on Radio-activity and Electro-therapeutics.

Part II., the largest part of the volume, is devoted to a review of medical and surgical progress for 1914, by many contributors, Part III. to naval and military surgery, and Part IV. to public health, including medico-legal and forensic medicine, State medical (including legal decisions), industrial diseases, and toxicology and school medical service, terminating with an illustrated catalogue of medical and surgical appliances.

This annual summary continues to prove most useful, especially to the busy practitioner, who otherwise has little time or opportunity to keep in touch with the most recent advances in medical and surgical science.

MEDICINE.

This volume (No. 2) of the Practical Medicine Series on General Surgery[2] is a very useful book. It is not written in a polished literary style; it is of the case-sheet and note-book order, illuminated everywhere by the personal touch of criticism, sometimes in commendation, sometimes sceptical, and sometimes in blame, by its gifted editor, John B. Murphy. The criticism is sometimes very vigorous, and when Murphy thinks any particular set of surgical results appalling, he says so in plain, direct terms. The book is not encyclopœdic, but contains a selection of material thought to be most useful and interesting, culled from periodical literature. It is difficult to single out subjects, but it may be said that there is much of interest relating to surgery of bones, of the thyroid, of the breast, and of the stomach and duodenum, and a very full discussion of the surgery of the vermiform appendix. All this is well worth reading, and is stimulating to thought. The surgeon, who follows the periodical literature in his reading, will meet with some of the topics and ideas which have been touched on in the surgical journals; the busy practitioner, who has not had the same opportunities, will find in this annual a good deal of valuable information, which is, thanks to the Editor, not preserved in too desiccated a condition for ready consumption.

The following proclamation has appeared in the New South Wales Government Gazette, No. 181, under date October 6, 1915:—

Whereas by an Act passed in the second year of the reign of His late Majesty King Edward the Seventh, intituled the "Public Health Act, 1902," it is enacted by section 28 that the Governor may, by proclamation, declare that any disease therein named is an infectious disease within the meaning of the said Act: And whereas it is deemed expedient that the following disease be declared to be an infectious disease within the meaning of the said Act, namely, Epidemic Cerebro-Spinal Fever (Meningococcal Meningitis). Now, therefore, I, Sir Gerald Strickland, Count della Catena, the Governor, aforesaid, with the advice of the Executive Council, do hereby declare the above-mentioned disease to be an infectious disease within the meaning and for the purposes of the said Act, on and after the eleventh day of October, one thousand nine hundred and fifteen.

[1] The Medical Annual, 1915, thirty-third year. Bristol: John Wright and Sons, Ltd. Demi. 8vo., pp. 959. Illustrated; also coloured plates. Price, 11s.

[2] The Practical Medicine Series, edited by John B. Murphy, M.D., vol. 11, General Surgery, 1915. Chicago: The Year Book Publishers: pp. 602, demi 8vo. Price $2.

The Medical Journal of Australia.

SATURDAY, OCTOBER 16, 1915.

Enteric Fever at the Front.

The military authority has two main responsibilities in connexion with the men who place their services at the disposal of the Commonwealth and of the Empire. The first is to use the soldiers to the best advantage to defeat the enemy within the shortest time possible, and with the smallest possible sacrifice of life and limb. In this responsibility the authority is justified, and indeed compelled to place full reliance on the officers commanding in the field. The second responsibility consists in the employment of every reasonable precaution to safeguard the health of the men during the time when they are exposed to the additional risk inseparable from a campaign. Modern science has placed at the disposal of the authority measures to check the spread and limit the ravages of a number of infective processes which, in the past, have proved so fatal to combatant soldiers. At the outset of the war, we published a general account of the means at the disposal of the hygienist, and from time to time since this publication we have reverted to the subject of prophylactic precautions against some of the infective conditions known to be present in the field.

On September 25, 1915, we again entered into a discussion concerning the value of antityphoid inoculation, and showed what the effect has been in the army of the United States, in which this preventive measure has been compulsory since September 11, 1911. The success of this expedient has exceeded the most sanguine expectations. Similarly, the success of compulsory antityphoid vaccination in the French Army has effected something approaching a stamping out of the disease.

On September 18, 1915, we published an extract from a report issued by General W. D. Williams, Director of Medical Services of the Australian Imperial Forces in Egypt, to the High Commissioner, in which it is set forth that only three patients had been admitted to the No. 1 and the No. 2 General Hospitals with the diagnosis of enteric fever, and that there was some doubt as to the accuracy of the diagnosis in these cases.

In view of the undoubted possibility of reducing the incidence of enteric fever to a minimum, it is very disconcerting to learn that among the invalided soldiers admitted last week to the Randwick No. 4 General Hospital, no less than 200 were returned from Malta, convalescing from enteric fever. At first sight, it would seem as if the prophylactic inoculation had failed to effect a sufficient protection. A second possibility would be that the diagnosis was faulty, and that the cases were Malta fever, and not enteric fever at all. The third alternative that has to be taken into account is that, in spite of the general order that all men leaving the Commonwealth should be inoculated against enteric fever, a considerable number of men were not so protected.

There is ample evidence to show that if inoculation is properly carried out, the incidence of enteric fever is reduced to a very low figure. The military authority could not be held responsible for failure if this were due to inefficient vaccination. The blame would rest entirely on the shoulders of the medical men carrying out the procedure. Adequate protection is afforded when a sufficient dose of carefully prepared typhoid vaccine is injected on three occasions at intervals of one week between the injections. The technique is so simple that failure is unlikely to arise through faulty methods. The preparation of the vaccine is a matter for a properly equipped laboratory, and in the absence of any evidence to point to faulty preparation, we must assume that the vaccine used for the inoculation of our soldiers was satisfactory. As far as New South Wales was concerned, the inoculation was carried out for a time by the Department of Public Health, and later by the Medical Officers in training camps. This cause of failure is therefore improbable.

The second explanation is also highly improbable. A few years ago Malta, or Mediterranean, fever was responsible for a very large amount of sickness among the British troops at the garrison in the island. On July 1, 1906, an order was issued forbidding the supply of goat's milk to the garrison. In 1905, there had been 643 cases of fever; in the first half of 1906 there were 123, although the worst months of the year had yet to come. In the second

half there were only 40 cases; in 1907 there were but 11; in 1908 there were 5, and in 1909 there was only 1 case. These figures reveal the fact that Malta fever was stamped out of the garrison at Malta between the years 1906 and 1910, and it is extremely unlikely that the precautions which saved so much sickness but a few years ago should have been relaxed during a period like the present.

We are therefore forced to examine the third possibility. On August 10, 1915, the Secretary of the Department of Public Health of New South Wales addressed a letter to the Acting Director-General of Medical Services (see *The Medical Journal of Australia*, September 18, 1915, p. 277), in which he stated that "the medical officers of this Department, from their experience in inoculating troops, are of opinion that, though a large majority of the men were protected against typhoid fever by two or three doses of vaccine, still a certain number, probably small, escaped any inoculation at all, whilst others only received one dose." Captain Schlink, in his evidence before His Honour Mr. Justice Rich, stated that about 75% of the men at the Liverpool Camp were not vaccinated against enteric fever, and about 50% left Australia unprotected. Some attempt has been made to vaccinate the soldiers on the transports, but from the information available, it is impossible to estimate the proportion of the unvaccinated who received three doses on board ship. We have therefore some striking evidence that the control exercised in connexion with the antityphoid inoculation of troops has been extremely lax. For this the military authority is directly responsible. The authority has not discharged its duty by the issuing of an order that every man should be inoculated. A system should be evolved whereby every man should be subjected to the procedure. A suggestion has been made by the Medical Officers of the Department of Public Health of New South Wales that enquiries should be made among the men aboard the transports in this connexion. This proposal could not possibly have the desired effect. Many men, not understanding the full significance of the position, would suppress the information that they had not been vaccinated. In the case of vaccination against small-pox, it has been the custom for years to give each person a certificate of successful vaccination. The same rule should apply in the case of enteric fever. The certificates should be handed to the officer in command of each unit, and if, by any accident, carelessness or trick a soldier escapes, the inoculation could easily be completed on board the transport.

The importance of the situation cannot be emphasized too forcibly. Australians are volunteering in numbers to do duty under the British flag. They have been placed in positions of great danger, and the appalling loss of life and injury resulting from the difficulties of the tasks imposed on them should serve as an additional warning to the Department of Defence to adopt every means to keep them free from disease. Enteric fever is preventible, and the instrument for its prevention is in the hands of the authority. The public has the right to demand that these means should be employed, not in a haphazard manner, but deliberately, skilfully and uniformly. This is not the time for amateur bungling.

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AUSTRALIAN PRACTITIONERS AT THE FRONT.

A little more than a year ago, when it was realized that many medical practitioners would be called on to undertake naval and military duties, resolutions were passed in every Branch of the British Medical Association throughout the Commonwealth, establishing the principle that the interests of these men should be safeguarded by their colleagues during the period of their absence. It was agreed that no one should take advantage of the altered conditions to increase his own practice, and that patients should be induced by those looking after them to return to their former medical advisers as soon as they returned from the war. This principle is recognized by all reputable practitioners; a man who makes capital out of his country's necessity deserves the contempt of his colleagues.

In the interval, the position has assumed a wholly unexpected aspect. The medical profession in the Commonwealth is becoming depleted to an alarming extent. The civil population and the troops are making calls upon medical practitioners which can scarcely be met. Over 500 medical practitioners have joined the Australian Army Medical Corps; a

further two hundred are serving with the Royal Army Medical Corps, and the Australian Navy is using the services of a considerable number. The total number of practitioners in Australia is under 3,000, so that approximately 25% of the men have withdrawn themselves from civil practice. The result of this withdrawal must inevitably be a breakdown in the normal arrangements, unless the medical practitioners remaining on duty re-cast their practices.

There is a second principle involved, which the whole profession will doubtless recognize. This is that during the abnormal period of the duration of the war, the interests of the community must be paramount, and the distribution of practices must be adjusted for a time to meet the requirements. We appeal to practitioners throughout the Commonwealth, and especially to those residing in small country towns, to forego for the moment particular advantages over their fellow practitioners. The work can only be accomplished satisfactorily if amicable relations exist between the doctors practising in any given district. No one scheme will satisfy all the conditions, but the main principle on which local arrangements should be built up must be a temporary pooling of the work and a distribution on a topographical basis. In certain districts it may be found advantageous to institute some form of central bureau, from which the allotment of the patients can take place. Elsewhere it may be found convenient to work with a roster of medical practitioners, in order that the practice of absent men may be attended to with the least amount of sacrifice of time and energy. Other schemes can be suggested to suit special cases. In all cases it would be well if no step were taken before all the local practitioners had met in conclave and had determined on the method best suited to the local conditions. Where difficulty is experienced, assistance can be sought from the Council of the Branch of the British Medical Association. In many instances plans have been considered and a general concurrence has been arrived at; but there are still numerous districts in which an adjustment would be to the material advantage of the community.

In the case of Lodge practice, some special difficulty may conceivably arise. In the majority of the States a truce has been called between the British Medical Association and the Friendly Society Lodges. Lodge patients are being attended under the old conditions, on the understanding that immediately peace is proclaimed, the negotiations will be re-opened and adequate conditions of service will be insisted on by the medical practitioners. In certain places, practitioners have become estranged from their colleagues, because they have entered into agreements with Lodges or Associations in opposition to the declared policy of the Branch. We would suggest that for the present, these differences should be buried and that the offending practitioners should be called upon to work together with the rest of the profession. It is by no means unlikely that a more intimate contact with their colleagues will bring to them the importance of unity of action, and when conditions are again normal, they may be inclined to join with their fellows to improve the conditions of practice. They will no doubt learn that it is to the advantage of the patients as well as of the doctors if intolerable terms of practice were abolished. In the meantime, let each man in the profession recognize the nation's need, and even if it should involve some personal sacrifice, let him join in the common movement to accord the community scientific medical attendance on a temporary scheme, acceptable to all the practitioners in the district.

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GAS FORMATION AFTER GUNSHOT WOUNDS.

The military surgeons with the troops operating in Northern France have directed attention to the complication of the healing of gunshot wounds by various degrees of gaseous phlegmon. The development of gas has been seen both in wounds caused by fragments of massive projectiles and in those due to bullets from rifles and shrapnel. Those wounds, in which much bruising and contusion have lowered the vitality of the part, have been more liable to become affected with emphysematous processes than those in which the tissues have not been crushed. These processes have been more frequent in wounds that have been treated late than in those in which surgical cleansing has been carried out within six hours of the injury. A number of conditions showing differences in their physical signs are now recognized as various phases of the same infective process. The three signs whereby this infective process can be distinguished from other inflammatory septic changes are: the appearance of a bronzed colour in the skin and tissues, the issue of a red, watery discharge from the wound, and the distension of the tissues with gas.

The extent of the infected area modifies the clinical picture. Where the wound is superficial and the process ulcerative, a profuse discharge escapes from the wound, which is surrounded by an area of bronzed skin showing a variable degree of emphysema. At times the formation of gas is so extensive that it spreads in the subcutaneous tissues for considerable distances from the wound. This is especially noted in wounds of the limbs. The cases of superficial inflammation have responded readily to surgical treatment. When the wound has been cleaned and provision made to remove the profuse discharge, these injuries have healed rapidly. No special treatment of the emphysema has been required, the gas being absorbed in the course of some days, when its continuous formation is prevented. Such wounds are greatly benefited by exposure to air, by lavage with oxygenated fluids and by disinfection with hydrogen peroxide or hypochlorite of sodium.

When the injury extends deeper, so that it involves the muscular tissues, the septic process may remain more or less restricted in area. Under these conditions, an abscess or a localized cellulitis will be accompanied by the cardinal signs of a gaseous infection. These cases have been more serious than those with superficial changes, but have frequently responded to surgical intervention. Free exposure to air and oxygen have been considered the guiding principles to their treatment. Instead of remaining localized to the seat of injury, the infective process may spread rapidly through the healthy tissues, leading to the condition of fulminating emphysematous gangrene. This condition is liable to occur when a large mass of tissue has been killed or severely injured by a blow or by crushing of the tissues. The mass of tissues serves as a base in which the infective process may develop unchecked. Cases of this kind are always fatal. A condition of gaseous septicæmia, in which the whole body is involved, has also been observed.

The French bacteriologists have examined the microbic flora of these infections. They have noted that anaerobic bacteria are invariably associated with these emphysematous processes. The various races of the bacillus of malignant œdema have been isolated from these wounds. The organism that has been present in all cases of gaseous infection is the *bacillus perfringens*, an anaerobic bacillus which had been isolated from the intestinal canal and which had previously been regarded as concerned with putrefactive changes within the bowels. This germ, which seems to be identical with the *bacillus aerogenes capsulatus* of Welch, is an encapsuled non-motile bacillus, staining with Gram's stain, which does not form spores in the body of the animal or on culture media even when the cultures are old. The bacillus perfringens grows commonly as a short, thick rod with square ends. It forms gas on glucose agar so freely that the jelly is broken to fragments. When sown anaerobically on litmus milk, the bacillus brings about rapid coagulation of the milk. A spongy red clot floats in a transparent whey. Injected into the muscles of the thigh of guinea-pigs, in sufficient dose, it leads to death from a spreading infection characterized by red gelatinous œdema and copious formation of gas.

The bacillus perfringens has not only been found in gunshot wounds in which a septic gaseous infection is present, but it has been isolated from wounds in which no clinical signs of its presence have been manifested. The bacteriologists attached to the field hospitals in certain districts state that it is invariably present in wounds not subjected to surgical treatment for three to seven hours after the injury has been occasioned. It thus appears that this organism can live in the tissues as a saprophyte without leading to the formation of gas.

The bacillus perfringens is not found alone, but is accompanied by many micro-organisms. In the gaseous infections, diplococci have been found most frequently. Sometimes these diplococci yield the cultural characters and the pathogenic properties of the pneumococcus, but not always. Streptococci have been found in the wounds, but do not belong to virulent strains and erysipelas has been a rare complication. Staphylococci are not uncommonly present. Other organisms have been occasionally isolated. In addition, a number of anaerobic bacilli, differing in various ways from the bacillus perfringens, have been separated. In the fœtid infections the *bacillus sporogenes* of Metchnikoff is more frequently present than the *bacillus putrificans*.

The pathologists have studied the microscopical changes accompanying the infective process. In cases proceeding to cure they have recognized three stages. In the first stage the tissues appear bronzed, much gas is formed, leucocytes may be present, but phagocytosis is absent. In the second stage, the production of gas ceases; the tissues become necrotic and friable; leucocytes are absent, but an abundant, sanguineous exudate distends the tissues. In the third stage, the tissues have regained their normal colour, leucocytes are abundant and are actively phagocytic.

The occurrence of infection by the bacillus perfringens has been so widespread and the fatalities due to its distribution so numerous that the aid of vaccino-therapy has been invoked to diminish its ravages. The assistance of preventive medicine has been successfully obtained to combat infection by the bacillus of Nicolaier, and the passive immunization with anti-tetanic serum has lessened the number of cases of tetanus. The systematic use of vaccines, prepared from the bacillus perfringens by Weinberg, has been introduced for ten months to diminish the number of cases infected with the bacillus perfringens and to lessen the virulence of the septic processes when they are due to this germ. More recently polyvalent vaccines of the different anaerobic bacilli have replaced those containing bacillus perfringens alone. We can congratulate the French military medical authorities on their foresight in providing the field and base hospitals with competent bacteriological assistance, and we may offer the French bacteriologists our respectful homage for the manner in which they have availed themselves of the opportunity to lessen the mortality and suffering of war.

THE SMALL-POX EPIDEMIC.

The epidemic of variola does not show any signs of dying out. It will be remembered that the disease almost disappeared from New South Wales in April of this year, and as it was apparently under check a proclamation was issued on May 18, declaring the State no longer a proclaimed area under the Quarantine Act, 1897. Very shortly after this proclamation a few cases were discovered in the Kurri-Kurri district. The Department of Public Health did not regard this recrudescence of the epidemic as a serious matter, but certain precautions were taken to check its spread. It is stated that the community was subjected to vaccination, that notification of all cases was enforced, and that patients and contacts were kept under strict supervision. In spite of these measures the number of cases is not diminishing. During the past three weeks, 22, 24 and 33 cases have been notified. This epidemic has lasted too long. From an economic point of view, it is very short-sighted policy to be satisfied with half measures, but there is a still more important aspect of the case, namely, that the type of the disease may become severe, and indeed appears to be doing so. The New South Wales Department of Public Health has been faced with the problem of getting the upper hand of this disease, and from all appearances it has failed. Other States have been visited by the same disease, and energetic measures have been successful in eradicating it within a short time. We may instance the outbreak in Western Australia in 1914.

We have pointed out from time to time that health matters should not be dealt with individually by the State Governments. There is no essential difference between the problems to be faced in one State and those requiring attention in another. The same means must be used to stamp disease out. The instance of the New South Wales variola epidemic is another argument in favour of handing over the control of the public health to the Federal Government. There is apparently but little prospect of the passing of a measure making vaccination of the whole community compulsory in New South Wales. Other means of checking the disease are uncertain, slow and dependent on the manner in which they are carried out in the affected area. The Federal Parliament could scarcely withstand the representations of a strong man at the head of the Health Department, and we are persuaded that compulsory vaccination would become a practical measure under a Federal Health scheme.

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CHEMICAL ANTISEPTICS.

Attention has been repeatedly drawn during the war to the value of antiseptics setting free chlorine in the surgical treatment of infected wounds. An antiseptic for use in wounds should be freely soluble in water, and not precipitated by proteins. It should possess a minimal toxic power and slight local irritating action. The hypochlorites fulfil some of these conditions, but are irritating, and are inconstant in their composition. Solutions of sodium hypochlorite prepared under special supervision can be made of constant composition. The free chlorine available in such solutions sets free oxygen, when brought into contact with the liquids of the body. Much research has been carried out to find substitutes for the hypochlorites which would be less irritating and more stable in their constitution. Dr. H. D. Dakin has communicated to the Academy of Science of France the results of his investigations of the sodium salts of the sulphochloramides of benzene and toluene These bodies are very soluble in water, and possess a low-grade of toxicity. They can be employed advantageously as an antiseptic. The use of organic compounds, which decompose slowly to liberate those inorganic radicles needful for therapeutic purposes, opens up a new field of therapeutics.

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STATE CHILDREN DEPARTMENT, QUEENSLAND.

Mr. W. K. Saltoun, Director of the State Children Department, Queensland, has presented his report to both Houses of Parliament for the year ending December 31, 1914. At the end of the year there were 5066 children under State control. These children were distributed as follows: 952 were in institutions, 13 in hospitals, 626 were boarded out with foster parents, 2455 were boarded out with female relatives, 477 were hired out, 38 were adopted, and 104 were released on probation. The institutions in which the children were placed consisted of four homes controlled by the State, two licensed institutions controlled by the Salvation Army, two schools directed by the Anglican Sisters, and two orphanages, two schools, and an asylum, under the charge of the Sisters of Mercy. The total expenditure on account of the Department amounted to £69,650. The amount of money contributed by relatives towards the cost of maintenance of the children was £4460. During the year there were 45 deaths among the children under the care of the State. Of the 45 deaths, 34 occurred in children under one year of age. Eleven of these were due to gastro-enteritis, 3 were due to tuberculosis of the intestines, and 3 were due to meningitis. Among the older children who died, one died from tetanus, two from diphtheria, one from appendicitis, three from pneumonia, one from intestinal obstruction, and one from heart disease. The Director draws attention to the need of a special home for children, who are deficient in any way, cripples, mentally weak or epileptics. He is of opinion that a cottage home should be established where the children can receive special care and attention. If such a home were established, it might be possible to induce the parents of other defective children to hand them over for treatment and instruction.

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THE MINDA HOME, SOUTH AUSTRALIA.

The seventeenth annual report of the Minda Home includes information in regard to the work achieved during the year ending March 31, 1915. The home was established in 1894 for the care of the feeble-minded, idiotic, imbecile, and epileptic persons of both sexes. There were 82 inmates at the beginning of the year, and 31 were admitted during its course. Of these, two died and four were discharged. The health of the patients has been good on the whole. There were four cases of enteric fever, one of which proved fatal. During the year, endeavours have been made to improve the sanitary arrangements of the home, and the effluent has been diverted for agricultural purposes for the cultivation of maize, barley and other requirements of the home.

In the statement of accounts, it appears that the Government has contributed £1,000 toward the upkeep of this excellent institution, and that the income from all sources amounted to over £3,500. The expenditure was kept below £3,000, so that a balance of £578 gave evidence of careful administration. There were no liabilities.

Abstracts from Current Medical Literature.

MEDICINE.

(140) Acute Lymphatic Leukæmia Ending in Complete Recovery.

Arthur J. Hall records a case resembling acute lymphatic leukæmia, which ended in complete recovery (*Proc. Roy. Soc. of Med.*, May, 1915). The patient, a male, aged 23, consulted his medical attendant on March 20, 1911, on account of swelling of the glands on the right side of the neck, which he had noticed for a few days. As he had no pain, he did not seek advice earlier. During the following days the swelling gradually increased and became slightly painful. He also felt shivery and out of sorts, and at night felt hot and sweated. At this time he did not complain of sore throat, nor could any cause be found for the glandular enlargement. On March 26 it was noted that he had a large mass of glands on the right side of the neck, extending from the clavicle to the edge of the jaw. Individual glands could be distinctly felt, fairly soft but not discrete, painless and not tender on palpation. There were also solitary enlarged glands in the right neck, the left neck, both axillæ and both groins, all firm and painless. The spleen was felt about ¾ inch below the costal margin. There was no sore throat, and his teeth were in good condition. He did not look anæmic, and there were no hæmorrhages. A blood count showed: Hæmoglobin, 96%; red blood cells, 5,400,000; leucocytes, 32,000; large lymphocytes, 96%; polymorphonuclears, 4%. No eosinophiles were seen, and there were no evident changes in the red cells. Next day he had some pain in the glandular mass, and he had a temperature of 101° F. in the evening. A provisional diagnosis of acute lymphatic leukæmia was made, and he was put on liquor arsenicalis. On March 29 the glands were smaller, and he complained for the first time of sore throat on the right side; otherwise, no change. On March 30 he vomited. A differential blood count showed large lymphocytes 85.2%, small lymphocytes 4.4%, polymorphonuclears 10.4%. No eosinophiles and no changes in the red cells. On March 31 the right tonsil had become more painful, and was covered with an exudate. The spleen extended lower in the abdomen. Leucocytes, 35,000, with a very high percentage of large lymphocytes. On April 5 the glands were distinctly smaller, and the tonsil still swollen; the spleen was enlarged. Leucocytes, 10,800. On April 9 there was a general improvement, but the patient was easily tired on slight exertion. The improvement was steady and continuous, week by week. In July the glands were only just palpable, and the spleen could hardly be felt. In August he was able to go shooting, and from that time onward he remained in excellent health. In the discussion which followed this paper, F. Parkes Weber referred to a paper published by R. C. Cabot in 1913, which dealt with cases exactly similar to the one here recorded. Marchand had gone more fully into the subject in a paper published in 1912, and recorded several similar cases. After having his attention called to these papers, the author considered it clear that his case belonged to the same group as those referred to by Cabot and Marchand. Both these authors alluded to the difficulty of differentiating mild cases from early acute leukæmia, until their rapid recovery makes it obvious.

(141) Glycosuria in Chronic Intestinal Stasis.

Jordan (*Proc. Roy. Soc. of Med.*, May, 1915) records two cases of glycosuria in chronic intestinal stasis. The first patient was a male, aged 22. He had been perfectly well till four months previously, when he had an attack of appendicitis. An abscess had formed in the right iliac fossa, and a pint of pus had been evacuated. Phlebitis and thrombosis of the femoral vein followed the operation. He made a good recovery. Later he became constipated, and suffered from flatulence, but had no pain. The most striking result of the X-ray examination with bismuth meal was the discovery of extreme delay in the lower end of the ileum, the last coils of which were greatly dilated. The bismuth had not passed out of the ileum after 49 hours. The dilated terminal coil of the ileum lay in front of the cæcum. On pushing that coil toward the middle line of the body the ileo-cæcal entrance was uncovered, and the appendix was shown lying beneath the cæcum. Subsequently there was found to be great retardation in the passage of the bismuth through the large intestine. He was admitted to a nursing home for operation, when it was found that his urine contained a large amount of sugar. He died a few days later of diabetic coma, no operation having been performed. The second case was that of a woman, aged 47, who had been the subject of Graves' disease at the age of 30. She had had then a large goitre, exophthalmos and tremors. This complaint had yielded to treatment after six months. She was in fairly good health until about five months before being seen by the author. She then began to suffer from thirst and a bad taste in the mouth, loss of appetite, occasional nausea, constipation and wasting. The urine was found to contain a large amount of sugar. X-ray examination with a bismuth meal showed that the stomach was large, and exhibited active peristalsis. The pylorus was normal in form, but showed spasm. After a few minutes there was a partial relaxation of the pyloric sphincter, and the duodenum filled with bismuth. It was dilated, and strong writhing contractions, with repeated regurgitation of the bismuth from the third to the second part of the duodenum, were seen. The bismuth was greatly delayed in its passage through the stomach and small intestine. The ileum was hypertrophied; its course was tortuous, and it was firmly adherent in the right iliac fossa. The appendix was shown immediately beneath the cæcum, and appeared healthy. At the end of 95 hours the greater part of the bismuth was seen in the transverse colon, very little having passed beyond. As in the previous case, there was no question about the degree of the stasis. The patient was admitted to hospital for operation, but after a few days she died of diabetic coma. The author considers these cases so striking that they compel attention to the probable conclusion that there is a very definite relation between diabetes mellitus and chronic intestinal stasis.

(142) Prognosis of Auricular Fibrillation.

Harold Pardee (*Journ. Amer. Med. Assoc.*, June 19, 1915) emphasizes the fact that the presence of the irregularity does not greatly increase the gravity of the prognosis. Sinus arrhythmia may be disregarded; extrasystoles do not seem to lead to hypertrophy or cardiac failure, even when present over long periods of time. The inception of fibrillation is sometimes sudden, with the prompt appearance of severe symptoms. In these cases the heart rate is rapid from the start, about 140 to the minute. More frequently, however, the rate is about 80 per minute, and this rhythm may be present for a considerable time without symptoms. On moderate exertion, the rate increases and dyspnœa and palpitation appear, but, at first, do not persist. If untreated, the symptoms appear with less provocation, the heart is more rapid in the intervals, œdema appears and the patient is confined to his room. The heart cannot maintain its efficiency with the shortened diastole resulting from the rapid ventricular rate. Under energetic treatment with digitalis, the cardiac failure in either type of case is promptly corrected. Twenty minims of the tincture, four or five times daily, will usually relieve the dyspnœa and palpitation within 24 or 48 hours, and, by the fourth day, the patient is comfortable and the heart rate reduced to 85 or 90. By reducing the dose of digitalis, its toxic effects can be avoided and the heart rate kept at about 70. The patient will recover his strength and be able to go about. The digitalis, however, must not be discontinued. To give the heart rest between beats by prolonging the diastole, it will be necessary to continue the administration of digitalis indefinitely. As a rule, 10 minims of the tincture twice or thrice daily will be found sufficient. The author cites seven cases in which the patients have remained under treatment without cardiac symptoms for periods of from seven months to three years. All these cases were complicated by conditions of considerable gravity.

(143) Syphilis and Diabetes Insipidus.

J. H. Sequeira (*Proc. Roy. Soc. of Med.*, May, 1915) reports the case of a Jewish porter attending the London Hospital with gummatous infiltration about the right elbow, inner side of arm and upper part of forearm. The lesions had not broken down and had gradually developed during the previous two months. The patient was stout, flabby and anæmic, and five years previously had been treated for diabetes insipidus, with marked thirst and polyuria. At that time he had passed as much as 1,076 oz. of urine in twenty-four hours, and, at the time of report, was still passing 400 to 600 oz. daily. He admitted gonorrhœa, but not syphilis. He had lost all sexual desire, and one testicle had been removed for tuberculous disease. The pupils reacted normally, and the patellar and plantar reflexes were normal. The Wassermann reaction, on March 24, 1915, was positive. Two other cases were quoted from the literature. One was a male, aged 27, who had contracted syphilis six years previously. He had Argyll-Robertson pupils. In his case there was an acute onset of polyuria and polydipsia-diabetes insipidus. The other patient was that of a female, aged 37, who was treated in London Hospital in 1911 for multiple gummata of the forearm. She also had Argyll-Robertson pupils. Two years previously she had a sudden attack of polyuria and polydipsia. Her husband died of general paralysis of the insane. In the discussion which followed, McDonagh considered that the connexion between syphilis and diabetes insipidus was more frequent in the congenital than the acquired form. The lesion was in the posterior lobe of the pituitary body, and was probably a vascular one at first. Parkes Weber emphasized the occasional association of diabetes insipidus with tuberculosis, and Kinnier Wilson alluded to cases of diabetes insipidus associated with optic atrophy. In these cases the lesion was a disturbance of the pituitary body.

NEUROLOGY.

(144) Motor Dyspraxia and Paraphasia.

Fearnsides (*Brain*, Vol. 37, Pts. 3 and 4, 1915) records a case of motor dyspraxia and paraphasia, in which autopsy revealed the existence of a tumour in the supramarginal convolution. The patient, a married man, aged 41, an engineer's fitter by trade, was admitted to hospital on August 17, 1914, and died on September 29. In February, 1914, he began to lose his habitual skill in the use of his tools, and he became irritable and depressed. In June he developed a left-sided headache, severe and persistent, which kept him awake at night. On July 10 he developed diplopia, and he was then found to have paralysis of the left VI. nerve, and a certain amount of proptosis on that side. On August 3 he had three fits, after which his headache became worse, and the diplopia more marked; his speech also was altered. On admission to hospital it was noted that he was a well-developed, pale, thinly covered, right handed man, showing signs of recent wasting. The Wassermann reaction was negative both in the serum and the cerebro-spinal fluid. He had an irregular temperature, varying from 97° to 99° F. Examination of the chest showed some consolidation about the roots of the lungs, otherwise the viscera showed nothing abnormal. The knee-jerks were equal, and readily obtained; the ankle-jerks were normal and there was no ankle clonus; both plantar reflexes gave a flexor response. The wrist, elbow and jaw jerks were normal. Ocular and pharyngeal reflexes were normal. There was no interference with the movements of the spine, and the sphincters were normal. There was no disturbance of sensation of any kind, and no change of muscle tone or any muscular wasting. There was complete paralysis of the left external rectus, and some proptosis of the left eye. There was slight optic neuritis in both eyes; otherwise the cranial nerves were normal. He complained of almost constant severe pain on the left side of the head, over the orbital and temporal regions, but he had no vomiting, and had no more fits. His ideas of objects seemed to be normal; he had knowledge of the desired results of actions which he wished to perform, of the parts of the body which he would have to move, and of the order of their movement in order to accomplish the desired action. The general condition of the patient altered little during the first three weeks after his admission to hospital, but the interference with speech, with the performance of purposive movements, and with memory varied considerably from day to day. When the pains in the head were severe his memory was less certain, and his ability in carrying out movements with objects and on command diminished. From time to time the results obtained in answer to tests varied greatly, although the type of intellectual loss remained constant. The variations seemed to depend on the amount of attention the patient was able to concentrate on the required thought or action; at times little or no loss appeared, at others the loss was great. No actual loss of power and no definite paresis of any kind was discovered until September 5. On the night of the 4th to 5th the power in his left arm diminished considerably, although that of the right was unchanged. On September 24 he was completely hemiplegic on the left side; the muscles of the arm were flaccid; the left leg was hypertonic and stiff. On the left side the knee and ankle jerks, and to a less extent the arm jerks, were exaggerated, and both plantar reflexes gave an extensor response; he had also lost control of the sphincters. An X-ray examination of the head showed a loss of definition of the upper margins of the *sella turcica*, but no changes in the outlines of its floor or elsewhere in the skull, and no alteration in the density of the soft tissues of the cranium. At the autopsy it was found that the consolidation in the lungs was due to carcinoma. The whole of the pituitary gland and the meninges around it were infiltrated with carcinomatous growth. The left supramarginal convolution contained a nodule of secondary carcinoma 2.5 cm. in diameter. This nodule was slightly adherent to the meninges, had a rounded form, and extended deeply into the subcortex. It was surrounded on its upper and anterior border by recent anæmic softening; the lower half of the post-central convolution was diffluent. The rest of the brain was normal. Microscopical examination showed the nodule to be carcinoma; the pituitary gland was replaced by growth, with the exception of a narrow semilunar portion of the anterior lobe; in the remnant of the anterior lobe there were patches of necrosis.

(145) Friedreich's Disease with Spastic Phenomena.

Porter Parkinson (*Proc. Roy. Soc. Med.*, December, 1914) describes a case which he diagnosed as Friedreich's disease with spastic signs. A boy, aged thirteen years, was the ninth of ten children. For three years before his birth his mother had been very depressed and almost insane. Patient was a full-time child, healthy at birth, but before the age of three years he had scarlet fever, measles, chickenpox, whooping-cough and diphtheria. He began to walk at three years, but never walked well and was never very intelligent. He began to stammer two years ago. The patient was a fairly well-grown boy with a somewhat unintelligent expression; speech indistinct, slurred and syllabic; gait spastic, uncertain, and he tended to keep the heels raised from the floor. He had slight difficulty in turning; Romberg's sign was absent. The legs were held stiffly, the muscles were hard and well developed; the foot showed marked *pes cavus* with some *equinus*; the big toe was hyper-extended at the proximal joint, and the extensor tendon was very prominent. There was marked knee and ankle clonus and an extensor plantar reflex response. The arms were in every way normal. The cranial nerves were normal. The spine was normal and the sphincters were unaffected. There was no disturbance of sensation. No other case of the disease was known in the family. Parkinson expresses the opinion that this is an example of Friedreich's disease in which the lateral columns of the cord were mainly affected. There was no sign of posterior column disease, and Lissauer's tract was not involved. He considers that the case resembles those described by Singer as spino-cerebellar ataxy, but differs from them in the absence of optic atrophy.

LIVERPOOL CAMP ENQUIRY.

(*Continued from page* 356).

Analysis of Evidence.

The Unsatisfactory State of the Medical Service.

In the next place, his Honour, Mr. Justice Rich, criticizes the administration of the medical services. He designates it as clumsy and uncertain, and proceeds to examine the various details, including sick parades, the administration of the venereal compound, the insufficiency of the staff, the want of continuity of management, the alleged callousness and indifference of the doctors, and the absence of a dental corps.

Before turning to the recommendations dealing with the question of administration, it may be well to consider some of the evidence given in this connexion. Colonel R. H. Fetherston, Acting Director-General of Medical Services, stated in evidence that he had paid an official visit to the camp, and had consulted with the Principal Medical Officer. On his return to Melbourne he forwarded a recommendation to the Minister, regarding the number of medical officers necessary for the proper conduct of the work in the camp. He recommended one Major and two Captains for each camp hospital, and an extra doctor for every additional 1,000 men. Thus a camp of 8,000 men would carry with it, in addition to the Major and two Captains, eight other medical men. He suggested that each camp hospital should contain 60 beds. He objected to the plan of keeping sick patients in a camp. It appears that Colonel Perkins was unaware of the order based on this recommendation. The witness had not been requested to supply further medical officers for the hospital. Early in May instructions were issued in regard to the increase of personnel at the Randwick No. 4 General Hospital.

Colonel Fetherston described the system of the selection of medical officers. The nomination had to be made by the District Commandant. The Principal Medical Officer recommended men for nomination, and if the Commandant was satisfied, he forwarded the names to Headquarters. It appears that at one time there was a considerable amount of confusion, and want of uniformity between the requests for medical officers by the Principal Medical Officer and the recommendations of the District Commandant. After dealing with this and other instances of request for an increase of personnel, the witness stated that there had never been any refusal of a doctor or a nurse, and "where they have acted in anticipation of authority, no objection has been made."

Turning to the question of the appointment of dentists, he referred to an offer made by the Odontological Association to supply a roster of 14 experienced dentists to attend at the camp. It was stated that the dentists would provide their own chairs and instruments, but that the Department would have to pay for materials and the fares of the dentists. The District Commandant approved of the scheme, but pointed out that authority would be required for incurring any expenditure. A request for details of expenditure was sent in and forwarded to Captain Schlink. In the course of time the estimates were supplied, and after certain difficulties had been overcome, the financial authority was obtained. Colonel Perkins, the Principal Medical Officer, had stated in evidence that he had not heard that this authority to carry out the scheme had been received.

When he inspected the hospital at Liverpool in April, Colonel Fetherston found everything in good order, clean and smart. It was, he stated, the best field hospital he had seen. He criticized, however, the system of holding a big out-patient department, and suggested that a medical officer should be living in the lines in each depôt of 1,000 men. In case of serious illness, the patients should be sent to the hospital. By this means the number of patients seen by the five or six doctors each morning could be reduced from 100 or 200 to 20 or 30. The medical officer should have his field pannier, his orderly, and his orderly corporal.

Lieutenant-Colonel A. E. Perkins deposed that he had been appointed Acting Principal Medical Officer on April 22, 1915. Early in May he recommended the appointment of an additional number of permanent medical officers. This recommendation was forwarded to the District Commandant. He recommended the appointment of a sanitary officer, and of an officer to perform the duties of the Senior Medical Officer during the absence of the latter. He also recommended the provision of a lecture tent in which instruction in hygiene and sanitation might be given. At the same time, he had received an application from the Board of Health to relieve the Board of the duties of inoculating recruits against enteric fever. He, therefore, instructed the Senior Medical Officer to have these duties performed by the A.A.M.C. officers.

Lieutenant-Colonel Perkins stated:—"As they were continually changing, some going with expeditionary units and transports and reinforcements, there could be no proper continuity of effort, and I continually recommended that it was necessary to have permanently established officers at Liverpool."

When at Melbourne he had urged the appointment of a fixed whole time staff. He received a list of permanent personnel, beyond which "he was not to go." He pointed out that he had frequently requisitioned a nurse or a medical officer for a special purpose, but before the authority to make the appointment had been received the necessity had passed.

As the medical officers taking up duty in the camp had but little experience of large camps, he wrote detailed instructions dealing with the duties they had to perform. He also took steps to secure the services of a sanitary officer. On June 23, 1915, he recommended that recruits on joining should be sent to the huts. This was done to give them better shelter and to avoid the necessity of their sleeping on the damp ground. He also recommended extra blankets for these men. He held the opinion that the Liverpool Camp was more free from flies than any other camp he had been in, and that the number of cases of gastro-intestinal complaints and of enteric fever was lower. He admitted the low incidence of enteric fever might have been accounted for by inoculation, but this would not apply in the case of gastro-intestinal affections.

Recommendations were sent to him by the Senior Medical Officer and by the Commanding Sanitary Officer. He forwarded these recommendations to Headquarters. "There my responsibility ceases." He considered the huts very good indeed, and did not think that the men were exposed unduly to drafts. He pointed out that his duties included much more than merely looking after the Liverpool Camp.

Lieutenant-Colonel Perkins expressed the opinion that inoculation against enteric fever predisposed the subjects to coughs and colds. Some people became seriously ill after inoculation. The witness considered that centralization had militated seriously against the comfort of the troops. He had found himself hampered by having to refer everything to Melbourne.

In regard to the offer of the Odontological Association, the witness had heard nothing about it since the recommendation was sent to headquarters. Turning to the question of latrines, Lieutenant-Colonel Perkins, on being pressed, gave it as his opinion that they should be as far away from the kitchens as possible, but in a position accessible from the huts and tents. The latrines should be in such a position that the prevailing wind would not blow across from them to the kitchens. The prevailing wind was from the north-east. For six weeks in the winter time it was from the west. The latrines were on the south-west of the kitchens. He had nothing to do with the laying out of the camp.

Turning to the question of wads used in the venereal compound, he did not know if they were left promiscuously about the place. They should be destroyed, but he did not think that this was done. The medical officer in charge of the venereal compound knew what the danger was in this connexion, and witness was convinced that he would insist on their immediate destruction.

In his evidence, Captain H. H. Schlink gave an account of the history of the hospital in so far as his connexion with it was concerned. When he took charge the hospital was in a hollow on the bank of the river. It comprised four tortoise tents, a quartermaster's tent, and orderly room, a packing store, and a few other departments. A measles epidemic broke out. After consultation with the Principal Medical Officer, a measles camp was established.

and six tortoise tents were set up to form a measles contact camp. He also procured two additional tortoise tents for the hospital proper. He had great difficulty in getting the shelter for patients at the sick parade, and seating accommodation. When the shed was erected the Sergeant-Major ordered the men into it, but they refused to go. They said that they preferred to stand outside while waiting. Reverting to the measles camp, Captain Schlink stated that the isolation camp was first set up on the present site of the venereal compound on March 27, 1915. He had to make provision for 150 patients. The epidemic was a severe one, and some of the patients were suffering from complications such as broncho-pneumonia, and Bright's disease. He, therefore, applied for a cottage in which the more serious cases could be nursed by trained female nurses. No. 1 Cottage Hospital was handed over to him on April 7, 1915. He had made an application a week before for the infectious cases to be nursed at the Coast Hospital. Unfortunately, no arrangement could be made to carry this out. At this time he made large requisitions for bedding, clothing, sputum mugs, bed pans, and other commodities. The contact camp was also established on March 27, 1915. In addition to the measles, he had to retain all cases of gonorrhœa, and soft sore, and to discharge all cases of syphilis. This was according to the orders received from Headquarters. Early in June, 1915, further accommodation was urgently required. He applied for the second cottage, and for other tents, but did not wait for financial authority. He took the cottage into use, and also opened up two of the tent wards which had not been handed over by the Works Department. During a period of wet weather the hospital was nearly flooded out. The tents were blown down and torn. He therefore advised the removal of the A.M.C. to its present position. During the summer the Director-General made an inspection of the camp at a time when there was but little sickness. He pointed out that provision should be made for the winter. After some discussion, his request that more or less permanent huts should be built, was granted. These buildings would accommodate 150 patients.

In dealing with the venereal compound, Captain Schlink pointed out that Dr. Cumpston, the Federal Director of Quarantine, had urged the Military Authority not to allow soldiers suffering from venereal diseases to mix with the community. At first patients suffering from gonorrhœa were accumulated. At the time of giving his evidence there were about 250 of these patients. Many of these men were escaping from the compound. Captain Schlink gave notice that the officers of the A.M.C. were responsible for the treatment of these patients, but not for their detention. He considered that a barbed wire fence, and an ample guard would be necessary. Many of the soldiers were cured within two weeks, and returned to the lines. He considered that they got better treatment than the average private patient who had to pay for it. He claimed that everything was in running order, and quite satisfactory. A few vermin infected patients were placed in a special tent in the compound.

Captain Schlink maintained that 75% of the men attending sick parade ought not to be there. Their complaints were quite trivial. When a serious case was discovered the medical officer in charge ordered the patient to the hospital. The orderlies were required to take the patient to the admission ward, to wash him, and to put on to him a clean pair of pyjamas. His kit and bag were taken to the packing store, and a receipt for each article was given in triplicate. One receipt was given to the patient, the second to the officer commanding his unit, and the third to the Officer in Command. He was then admitted to one of the wards. Each ward had 9 orderlies and 8 privates, with an officer in charge. Up to May 31, 1915, 2,202 patients had been admitted into the hospital. This number had been increased to approximately 4,000 on July 19, 1915. The admission rate was therefore approximately 8,000 a year. From January 19, 1915, when the Field Hospital was established, to May 31, 1915, there were 6 deaths. In 5 of these the cause was broncho-pneumonia complicating measles, and in one it was meningitis complicating influenza. The general death-rate worked out at 0.3%. At the Sydney and Royal Prince Alfred Hospitals it was between 4 and 5%.

The men attended at the dispensary tent for prophylactic inoculation against enteric fever, and for vaccination. These patients were kept separate from the men attending sick parade.

Early in May Captain Schlink recommended an increase of accommodation, both in the Field Hospital and for the personnel. He further recommended that the wives of the men in the venereal compound should receive that portion of the money which the men had allotted to their wives. He pointed out that the illness was due to the fault of the soldier and not to that of his wife. He also recommended the establishment of a training school for the rank and file. He called attention to the unsatisfactory construction of the stretchers which were being supplied. In regard to the system of recruiting medical officers, he urged that they should be compelled to spend a certain number of weeks at Liverpool before being accepted for regiments, ambulances or base hospitals. This would, in his opinion, be greatly to the advantage of the hospital, and of the men themselves. On April 1, 1915, he requisitioned the Principal Medical Officer for two extra medical officers. He was constantly trying to get more medical officers. On one occasion he was notified that nine of his medical officers would have to be on board a transport by 8 o'clock in the evening of the same day. His whole staff consisted of 11 medical officers, of whom two were sick. He was able to call on three regimental medical officers to assist him, and the eleventh man to do the work. In four months he had 45 different medical officers. He protested against this treatment. Had his recommendations been acceded to he would have had over 16 medical officers; this would have admitted of a regimental medical officer with a pannier being attached to each 1,000 men. Dr. Schlink also dealt in considerable detail with the training of the personnel, including stretcher drill.

In regard to the question of sick parades, he suggested early in May that four parades, at 7 a.m., 9 a.m., 2 p.m., and 5 p.m. respectively, should be held. This suggestion was carried out. At the 7 o'clock parade on July 1 a few men attended at the full hour, the second lot arrived 8 minutes after the hour, a third lot 15 minutes past 7, a fourth lot 20 past 7, and a fifth lot at 25 minutes past 7. It was impossible for the medical officers to get through the work unless the men were punctual. It was not part of his duty to attend sick parade. Two medical officers were allotted to do that duty. They had nothing else to do, but to attend to the four regular parades. One of them was called the Medical Officer of the Day. Every available medical officer was required to assist. As a rule there were four, and at times 5. If it were reported that a soldier had a rash, he would be taken to the measles hospital. On the other hand a man, feeling a bit seedy, with signs of coryza, might walk up to the parade. The medical officer would examine him for a rash under these circumstances.

After having answered a number of heterogenous questions on the supply of underclothing, the sources from which the members of the staff of the A.M.C. were recruited, etc., the witness was asked the following questions:—

> "Still, on the question of what I call red tape, you mentioned to Mr. Stephen something about the telephone that there were a number of complaints and it was only a matter of book entry to put them right."

Captain Schlink explained that he wanted a direct telephone communication from the headquarters of the A.M.C. Garrison Hospital (Victoria Barracks). He had urged the Department to supply this communication, but great delay had taken place. In his opinion the organization of the Army Medical Corps required a capable man at the head, and the necessary authority to co-ordinate the branches of the work. He was very emphatic as to the advisability of instituting a dental corps.

In regard to the personnel of the A.M.C. he was of opinion that he had never had a sufficiently large staff. There were approximately 1000 in the Army Medical Corps. He did not think that six commissioned officers were sufficient. An ordinary regiment of 1000 men had 23 or 24 officers of various grades. He did not suggest that so many would be required for the A.M.C., but since there was training as well as routine work to be done, he thought that 15 was a reasonable number. The men obtained the minimum amount of training at the Army Medical Camp. They did very good

work, and were quite efficient, but with more training they would be better equipped.

In speaking to the number of cases dealt with, Captain Schlink remarked that no enteric fever or dysentery had been treated during the summer. Inoculation against enteric fever was a good safeguard, but not an absolute protection. It had not been given a fair trial in Australia. Half the number of men were not injected before they left. Probably 75% of the men in the camp were not inoculated. The inoculations were carried out "according to convenience." Two hundred men were dealt with daily. In addition the men were vaccinated against small-pox.

The majority of the complaints treated in the hospital were influenza, measles, rheumatism, alcolholism, and diseases of the respiratory organs. Gonorrhœa, syphilis, epilepsy, neuralgia, neuritis, appendicitis, diarrhœa, abscess, contusion, and abrasions were also common. He did not regard the site at Liverpool an unhealthy one, but he thought that other sites, such as the Macquarie Fields, were preferable. He was of opinion that the same amount of sickness due to infective conditions would probably arise, wherever the camp was situated.

Captain Schlink was cross-examined in regard to a patient named White, who died in the hospital. He had no knowledge whatever that this patient was without a pillow. He admitted that if this were so there would have been negligence on the part of somebody. The fact of being without a pillow would not have affected his health. Captain Schlink did not see the man during life. Dr. Grieve and Dr. Kirkwood, who attended the patient, were of opinion that he died of cerebro-spinal meningitis.

The witness expressed the opinion that when three patients suffering from influenza, some blood affection, and measles were in contiguous beds, and were washed with the same piece of soap and dried with the same towel, there would be no danger of the infection being passed on from one patient to the other. He went so far as to suggest that when a man was suffering from one infection, an immunity toward another infection was developed. Had it come to his knowledge that such an occurrence had taken place, the orderly responsible would have been punished. He also defended himself in regard to an alleged incident in which wash-hand basins were utilized for the purpose of bringing the breakfast rations from the cook-house. He admitted that it was not a nice thing, but that the objection was merely sentimental. If the food were boiled, and poured directly into the basin, it would be sufficient to kill any bacteria present. He had no knowledge that wash-hand basins had been used for this purpose.

Witness stated that there was no regular system in regard to the length of time the men were kept at one duty. There was very little insubordination or lack of discipline displayed by his men. The offences were chiefly staying out beyond the period of leave, coming home drunk, and offending against the sanitary rules. Witness fined the men very heavily if they did not take the urine pails away before the sun came up. Questioned as to whether patients with high temperatures were required to leave the building for the purpose of going to the latrines at night, he replied that he believed that this had occurred before he had taken over the command. He had not heard of a case since. The orderly should not allow a feverish patient to leave the ward. No complaint of this kind had ever reached him.

Captain Schlink was further questioned in regard to the reception tent. He had recommended that seats should be provided. He was supplied with twelve forms. The sick patients sat on these forms, but many of the men, who were scarcely ill, were required to stand. It did them no harm to stand for two hours.

He agreed that the installation of a septic tank would be very advantageous. He understood that this was under consideration. The blankets used for patients with measles and other infective diseases were not used again until they had been sterilized with formalin.

His duty consisted in the organization and superintendence of the Army Medical Camp, and in making such recommendations as he considered necessary. He went round every day to see all the more seriously ill men, in order to control the treatment.

(To be Continued.)

THE SCHLINK FUND.

It is with the greatest pleasure that we are in a position to announce that 89 of the men attached to the No. 4 Australian General Hospital have sent us contributions to the Schlink Fund. By so doing they have shown their appreciation of the excellent work achieved, and kindly treatment accorded them, by Captain Schlink. We take this opportunity of tendering our grateful thanks to the members of the hospital for their public spiritedness and generosity. The names of the contributors are as follows:—

Amount previously received	£60	18	0
Dr. Bullock, Howard	2	2	0
„ Feige, K. A. A.	1	0	0
„ Paul, C. Norman	2	2	0
„ Rorke, Sydney N.	2	3	0

Personnel of the No. 4 Australian General Hospital—

Warrant-Officer	Parsons, S. L.	0	5	0
„	Roddam, H.	0	5	0
Staff-Sergeant	Clarke	0	2	0
„	Fitzpatrick	0	2	0
„	Martin	0	2	0
„	Merrick	0	2	0
„	Moore	0	2	0
„	Purkis	0	2	0
„	Smith	0	2	0
Sergeant	Babbage	0	2	0
„	Bates	0	2	0
„	Casson	0	2	0
„	Freeman	0	2	0
„	Hayes	0	2	0
„	Noone	0	5	0
„	Powell	0	2	0
Corporal	Alexander	0	2	0
„	Lamb	0	2	0
„	Sara	0	2	0
„	Waddell	0	2	0
„	Weymark	0	2	0
Lance-Corporal	Billett	0	1	0
„	Capper	0	1	0
„	Carter	0	1	0
„	Chant	0	1	0
„	Compton	0	1	0
„	Coote	0	2	0
„	Coventry	0	2	0
„	Dawson	0	1	0
„	Garner	0	2	0
„	Gillespie	0	1	0
„	Hoyle	0	2	0
„	Kassel	0	2	0
„	King	0	2	0
„	Laurence	0	2	0
„	Lorking	0	2	0
„	Maling	0	1	0
„	Miller	0	1	0
„	Mitchell	0	2	0
„	Mitchell	0	2	0
„	Moss	0	1	0
„	Murray, T.	0	1	0
„	McDonald	0	1	0
„	McRae	0	1	0
„	Nurthern, B.	0	1	0
„	O'Dell, E. S.	0	1	0
„	O'Dell, N. S.	0	1	0
„	O'Shannessy	0	1	0
„	Phegan	0	2	0
„	Richardson	0	2	0
„	Riches	0	1	0
„	Rooke	0	2	0
„	Saville	0	2	0
„	Stoddart	0	2	0
„	Swadling	0	1	0
„	Tonkin	0	2	0
„	Tressider	0	2	0
„	Trice	0	1	0
„	Wakefield	0	1	0
„	Wylie	0	2	0

Private	Ahearn	0	2	0		
„	Blakeney	0	2	0		
„	Bromley, F.	0	2	0		
„	Bromley, W.	0	2	0		
„	Collins	0	1	0		
„	Creswick	0	2	0		
„	Dalmazzo	0	1	0		
„	Fowler	0	1	0		
„	Gibson	0	1	0		
„	Goodman	0	2	0		
„	Graham	0	2	0		
„	Green	0	2	0		
„	Hardy	0	1	0		
„	Hare	0	2	0		
„	Heden	0	1	0		
„	Heskett	0	1	0		
„	Holtsbaum	0	2	0		
„	Hutchinson	0	2	0		
„	Lloyd	0	1	0		
„	Lorger	0	2	0		
„	Monk	0	2	0		
„	Murray, F.	0	2	0		
„	Nurthern, H.	0	2	0		
„	O'Dell, P.	0	2	0		
„	Puddicombe	0	1	0		
„	Toyer	0	1	0		
„	Talty	0	2	0		
„	Underwood	0	2	0		
„	Wilkinson	0	2	0		
					£7	16 0
Total					£76	1 0

Naval and Military News.

The following appointments have appeared in the Commonwealth Government Gazette under date of October 7, 1915:—

Army Medical Corps.

To be Majors—

Major J. A. Newell, A.A.M.C.
Major M. L. Williams, A.A.M.C.
Captain (provisional) C. Bollen, A.A.M.C.

To be Captains—

Captain (provisional) F. C. Wooster, A.A.M.C.
Captain (provisional) W. H. Donald, A.A.M.C.
Captain (provisional) R. B. North, A.A.M.C.
Harold Alfred Cardale Irving.
John Gladstone Mackenzie.
Arthur Geoffrey Owen.

In the casualty lists of the members of the New Zealand Army Medical Corps, under the heading of killed in Gallipoli, the name of Lieutenant Jeffrey Parker appeared on September 29. It is stated that Lieutenant Parker was attached to a Manchester regiment.

Among the casualties reported from France and Belgium in the last week of August, Lieutenant C. R. Dudgeon, R.A.M.C., and Lieutenant R. P. Nash, R.A.M.C., attached 1st Lincolnshire Regiment, are reported wounded. The casualty lists affecting officers in the Mediterranean Expeditionary Force, published at the same time, contain the names of Lieutenant G. Fleming, M.B., R.A.M.C., attached 4th South Wales Borderers, and of Lieutenant N. H. H. Haskins, M.B., R.A.M.C., attached East Lancashire Field Ambulance (T.F.), appear among the wounded.

The following regulation in regard to complaints of members of the Australian Military Forces has been issued by the Assistant Adjutant General of the No. 2 Military District. We assume that the regulation will apply to the A.A.M.C. as well as to the combatant troops:

Numerous complaints are being received at headquarters from members of the Expeditionary Forces ventilating grievances, real or imaginary. Apart from the question of discipline a great amount of unnecessary work at headquarters has thus been entailed, especially as regards complaints from men receiving treatment at Military Hospitals. In the majority of the cases the complaints could have been dealt with by the responsible officers on the spot and much time saved.

It is considered that ignorance on the part of the men of the proper course to adopt has been responsible for much of this. Camp commandants and commanding officers will take action to ensure that all ranks are informed of the provisions of the regulations on the point and that the proper procedure is thoroughly explained to the men. In addition, each draft of recruits as received into the depôts will be similarly informed.

On the other hand, care is to be taken that all officers to whom complaints are made give the questions raised every attention, with a view to any grievances being immediately redressed, and the men being instilled with a confidence in their officers and their desire to ensure the just treatment and comfort of those serving under them.

Officers are to be carefully instructed in this respect.

Public Health.

THE HEALTH OF VICTORIA.

The following have been received by the Department of Public Health, Victoria, during the week ending October 7, 1915:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	31	3	23	0	54	3
Scarlatina	18	0	2	0	20	0
Enteric fever	—	—	3	0	3	0
Pulmonary Tuberculosis	17	8	11	7	28	15

The following is a return of the cases of epidemic cerebro-spinal meningitis notified to the Board during the week ending October 7, 1915:—

	Metropolitan Area. Cases.		Rural Districts. Cases.		Totals. Cases.
Military	—	—	—	—	8
Civil	19		8		27

SMALL-POX IN NEW SOUTH WALES.

The following cases of small-pox have been reported to the Department of Public Health, New South Wales, during the week ending October 10, 1915:—

Newcastle and surrounding district 33

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending October 2, 1915:—

Disease.	No. of Cases.
Diphtheria	32
Varicella	24
Pulmonary Tuberculosis	14
Enteric Fever	6
Scarlatina	3
Malaria	2
Erysipelas	1
Cerebro-Spinal-Meningitis	1
Total	83

THE HEALTH OF HOBART.

The following notifications have been received by the Department of Public Health, Hobart, for the month of September, 1915:—

Varicella	7
Diphtheria	8
Scarlatina	1
Ophthalmia Neonatorum	1
Total	17

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending September 18, 1915:—

	Enteric Fever. Cases.	Diphtheria. Cases.	Scarlatina. Cases.	Pulmon'y T'b'c'losis. Cases.	Erysipelas. Cases.
Fremantle	—	1	—	—	—
Subiaco	—	2	—	—	—
Perth	1	1	1	—	—
Victoria Park	—	—	1	—	—
South Perth	1	—	—	—	—
Kalgoorlie	—	2	—	—	—
Boulder	1	—	—	1	—
Corrow	—	—	—	1	—
Dwellingup	—	1	—	—	—
Moonyooka	—	1	—	—	—
Watering (Toodyay)	—	—	—	—	1
Bellevue	—	—	—	1	—
Wiluna	—	1	—	1	—
Totals	3	9	2	4	1

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending September 25, 1915:—

	Enteric Fever. Cases.	Diphtheria. Cases.	Pulmonary Tuberculosis. Cases.
Fremantle	1	—	—
Fremantle East	—	1	—
Cottesloe Beach	—	1	—
Subiaco	—	—	1
Perth	1	1	2
Maylands	—	—	1
Victoria Park	—	1	—
Kalgoorlie	—	1	—
Boulder	—	1	—
Narrogin	—	1	—
Total	2	7	4

INFECTIVE DISEASES IN AUCKLAND.

The following notifications have been received by the District Medical Officer for the month of September, 1915:—

	City. Cases.	Suburbs. Cases.	Country Districts. Cases.	Total. Cases.
Scarlatina	14	5	4	23
Diphtheria	8	9	12	29
Enteric Fever	1	—	70	71
Pulmonary Tuberculosis	7	3	25	35
Blood Poisoning	4	3	2	9
Cerebro-spinal M'n'gitis	—	1	1	2
Variola (suspected)	1	—	—	1

Hospitals.

HOSPITALS AND CHARITIES.

The Government Statistician of New South Wales has issued Part VII. of the Statistical Register for 1913. In spite of the date given, the contents concern hospitals and charities for the year ending June 30, 1914. The publication is full of extremely interesting and important data, and the presentation is very excellent.

The volume begins with a table showing the expenditure by the State on hospitals and charities during the year. Next comes a table dealing with the staff and accommodation of the various institutions. The hospitals are divided into metropolitan and country. Of the 25 metropolitan institutions, 7 are hospitals containing over 100 beds. The order, according to number of beds, is as follows: Royal Prince Alfred Hospital, 392 beds; Coast Hospital, 337 beds; Sydney Hospital, 334 beds; St. Vincent's Hospital, 180 beds; Royal Alexandra Hospital for Children, 156 beds; Royal Hospital for Women, Paddington, 147 beds; and Lewisham Hospital, 116 beds. The medical staff of these hospitals, the strength of the nursing staff and the proportion of patients to each doctor and to each nurse is given in the following table, culled from the large table in the report:—

Hospital.	Medical Staff. Honorary.	Medical Staff. Ratio to No. of Patients.	Medical Staff. Salaried.	Medical Staff. Ratio to No. of Patients.	Nursing Staff. Number.	Nursing Staff. Ratio to No. of Patients.
Royal Prince Alfred.	47	1: 8.3	25	1: 15.6	149	1: 2.6
Coast	8	1: 42.1	5	1: 67.4	96	1: 3.5
Sydney	46	1: 7.26	16	1: 20.87	121	1: 2.76
St. Vincent's	36	1: 5	3	1: 60	80	1: 2.25
Roy'l Alex'ndra Hospital for Children.	21	1: 7.4	6	1: 26	65	1: 2.4
Royal Hospital for Women	16	1: 9	3	1: 49	20	1: 7.35
Lewisham	—	—	2	1: 58	49	1: 2.36

The only extra-metropolitan hospital with over 100 beds is the Broken Hill Hospital. This hospital has 122 beds. The number of honorary medical officers is 8, and the ratio is 1: 15.2; the number of resident medical officers is 2, and the ratio is 1: 61; while the number of nurses is 39, and the ratio is 1: 3.12. At the Newcastle Hospital there are 93 beds; the medical staff consists of 8 honorary officers and one salaried officer. There are 26 nurses, which is equal to one nurse to 3.57 patients. At the Waterfall Hospital for Consumptives there are 300 beds. The resident staff comprises of 2 officers and there are 2 honorary physicians. The number of nurses is 24, so that there is one nurse to every 12½ patients. The Carrington Convalescent Home, situated at Camden, contains 110 beds. There is no resident staff, and only two honorary medical officers. The number of nurses is six, which yields a ratio of one nurse to 18.3 patients.

Summarizing these figures, it would appear that in the general hospitals of Sydney the number of patients to be looked after by each resident medical officer varies between 15.6 (Royal Prince Alfred Hospital) and 67.4 (Coast Hospital); excluding the Coast Hospital, the number of patients to each honorary medical officer varies between 5 (St. Vincent's) and 8.3 (Royal Prince Alfred Hospital). At the Women's Hospital, each resident has 49 beds under his care, and each honorary medical officer has 9. At the Children's Hospital, each resident medical officer has 26 patients in the wards, and each honorary officer 7.4.

The conditions obtaining at the Coast Hospital compare unfavourably with those of other hospitals in regard to the medical staff. Both the honorary and salaried medical officers are too few in number for the size of the institution and the nature of the work undertaken. It is to be hoped that when the new hospital at Little Bay is opened the medical staff will be proportionate to the number of patients under treatment.

In regard to the call made on the nurses at the various hospitals, we find that with the exception of the Coast Hospital and the Royal Hospital for Women, not more than an average of 2.76 patients is allotted to any nurse. The lowest number obtains at St. Vincent's, where the nurses are Catholic Sisters, who give their services gratuitously. At the Women's Hospital the ratio of nurses to patients is different. We are unaware of any special reason why this should be so. The amount of work expected of the nurses in the hospitals at Broken Hill and Newcastle is somewhat greater than that expected of them in Sydney. The conditions obtaining at the Carrington Convalescent Home and at the Waterfall Sanatorium are not comparable to those obtaining at a general hospital.

The third set of tables records the cost of general maintenance, calculated per patient, both in 1912 and in 1913. In these tables, the data for 1912 from the St. Vincent's Hospital are not given. Since the cost of maintenance of hospitals varies greatly according to the size of the hospital, we do not feel justified in drawing a comparison between the small institutions and the large ones. We restrict our remarks therefore to the seven hospitals already named in the metropolitan district, and to the two hospitals in the country. Of the metropolitan hospitals, the lowest cost per patient was at Lewisham, where it was £56 4s. in 1912, and £58 4s. 6.2d. in 1913. Next comes St. Vincent's Hospital, where the cost was £66 5s. 9d. in 1913. The third on the list is the Coast Hospital, with £79.66 in 1912, and £85.93 in 1913. The fourth in order is the Royal Prince Alfred

Hospital, where the cost was £91.4 in 1912, and £99.31 in 1913. At the Royal Alexandra Hospital for Children the cost was £112.24 in 1912, and £109.89 in 1913. Then comes the Sydney Hospital, with £116.63 in 1912, and £119.37 in 1913. The Royal Hospital for Women comes last, with £119.82 in 1912, and £130.75 in 1913.

The cost per patient for the maintenance of the hospital at Broken Hill was £125.06, and at Newcastle it was £75.84.

The Statistician casts an average for hospitals having a daily average number of patients in the wards of over 100, and arrives at the figure of £83.93 for 1912, and £88.98 for 1913. A comparison in this respect should be made with full allowance of the peculiar circumstances of each institution, and caution should be exercised before satisfaction is expressed on account of a lower cost per patient. For example, it is obviously out of the question to set up the figures for St. Vincent's Hospital by the side of those for the Royal Prince Alfred Hospital. The figures given for the Lewisham Hospital are very low, and it is not unreasonable to seek some special cause for this, as compared with the other hospitals. The low figure obtaining at the Coast Hospital is explainable to a certain extent in the economy exercised in the medical staff, and we fear that an institution wholly governed by the State is less likely to provide reasonable comforts for patients than one supported in part or wholly by voluntary contributions and by patient's fees.

In the following tables the revenue and expenditure of hospitals is dealt with. Some highly significant figures are included. In the tables the special grants and the subsidies from the State occupy the first division, and in the second are the amounts derived from subscriptions, donations, proceeds of entertainments, etc., contributions by patients, and lastly miscellaneous revenue. The third column records the total revenue. We have recast the information for the metropolitan hospitals.

Hospital.	State Aid. Special Grant. £	State Aid. Subsidy. £	Total Revenue. £	Percentage of Revenue from State.
Balmain and Dist..	——	1,310	3,230	40.5
Renwick Hospital for Infants	501	327	1,870	43.7
Royal Hospital for Women	2,158	806	9,018	33.8
Coast Hospital ..	——	31,568	31,568	100
Manly (Cottage) Hospital	——	829	2,238	37
Marrickville Cottage Hospital ..	1,100	720	3,449	52.1
R.A.H. for Children	——	4,638	17,602	26.39
Royal North Shore Hospital	7,352	2,319	13,064	82.4
R.P.A. Hospital ..	15,500	16,650	46,956	68.4
South Sydney Hosp.	8,500	——	11,790	72
St. George (Cotg.) Hospital, Kogarah	——	1,018	2,641	38.5
Sydney Hospital ..	4,667	17,619	34,536	64.5
Syd. Homœpathic	——	400	1,497	26.7
United Dental Hospital of Sydney..	462	——	952	48.5
The Women's Hospital, Sydney ..	4,600	951	15,408	36.0
Western Suburbs Cottage Hospital, Croydon	——	824	2,482	33.6
Home of Peace for the Dying, Marrickville	——	——	1,139	00
Lewisham Hospital	——	——	6,464	00
Mater Misericordiæ Hospital for Women, North Syd..	225	——	2,129	10.5
N.S.W. Home for Incurables, Ryde	——	——	5,286	00
Sacred Heart Hospice for the Dying, Darlinghurst	225	——	7,883	2.8
St. Margaret's Hospital for Women, Sydney	——	——	2,891	00
St. Vincent's Hospital, Darlinghurst	300	——	16,205	1.8
South Sydney Women's Hospital ..	——	——	1,543	
Total	45,590	79,979	241,843	51.9

A consideration of this table reveals that if the State institution called Coast Hospital be disregarded, and if the Royal North Shore Hospital be placed in a separate category, on account of the unusual conditions attaching to this institution during the past two years, the only hospitals in receipt of more than 50% of its revenue from the Government are the two great teaching hospitals, the Royal Prince Alfred and the Sydney, and two others. One of the latter, the South Sydney, is not a subsidized institution, and the special grant was unusual, while the other is a cottage hospital in which a relatively small number of beds were occupied during 1913. The daily average is given as 25.4. The State aid to the two great hospitals, including the special grants, works out approximately at 2/3 of the total revenue. In the case of the other hospitals, the State support only amounts to 18.4% of the total revenue.

In addition to the 25 metropolitan hospitals, 125 country institutions are included in Table 4. The large majority of these institutions are small hospitals. The State supplied by special grant the sum of £24,536, and as subsidy £80,264, making a total contribution of £104,800. The total revenue amounted to £229,878. It therefore appears that the State contributed 45.6% of the revenue of the country hospitals.

In Table 5 the number of patients who were admitted, who were discharged and who died is given for each institution. This table is of importance for the purpose of arriving at the percentage figures of mortality and recoveries. In Table 6 the actual number of patients treated for each disease is set out, the figures for males and females being kept separate, while in Table 7 the number of patients admitted and treated for particular diseases, and the length of residence in hospital, is given. These tables do not lend themselves readily to being summarized.

The following Table, No. 8, contains the percentage records of patients who recovered or died from various diseases, and of the average number of days of sickness. The figures for males and females are kept separate. The diseases are grouped in the usual method, which, as we have pointed out on many occasions, is far from satisfactory. It appears that 198 patients were treated for cerebral hæmorrhage, and that in a further 1,529 cases treatment was required for other diseases of the circulatory apparatus. The number of patients who were admitted for treatment of affections of the cardio-vascular system was therefore 1,727. Of these 449 died, which is 26% of the total number The significance of diseases of the cardio-vascular system is not brought out by the Statistician, since he does not give any totals, and since he divorces cerebral hæmorrhage from diseases of the circulatory system. The percentage mortality from cerebral hæmorrhage was 61.3 in males, and 51.8 in females. Acute endocarditis had a mortality of 44.8% in males and 37% in females, while pericarditis had a mortality of 41.7% in males and 40% in females. In close connexion with diseases of the vascular system is Bright's disease and cirrhosis of the liver. There were 498 cases of the former. The mortality was 40.5% for males and 43.0% for females.

The amount of material in the tables dealing with the frequency, recovery-rate and mortality of the different diseases is so large that it is impossible in this place to deal with it in detail. The figures gathered from hospitals should be more reliable than those collated from the returns issued by the registrars of deaths, and in a similar manner it might be expected that the diagnoses and classification of diseases would be more reliable in large teaching centres in the metropolis than in the smaller country hospitals, far from the University. For this reason, the tables assume a special interest to the student investigating the incidence and mortality of disease. But it must not be forgotten that

the number of cases of a given disease does not represent the frequency of that disease in the community.

In the instance of pulmonary tuberculosis, it is doubtful whether the bare fact that in the hospitals and sanatoria throughout the State 23.7% of the females and 25.9% of the males who were treated in one year died, is of importance. Much more information is required to render this information of practical value. Again, there is little to be learned from the bald statement that the mortality among cancer patients treated in the year varied between 6.7% and 48.2%, according to the sex and to the organ affected. We would be disposed to pass over the mortality statistics of the chronic affections. Quite a different state of affairs appertains to the acute infections. We learn that the mortality from pneumonia among men was 17.6%, and among women it was 13.5%. The case mortality of broncho-pneumonia was 22.2% and 18.5% among men and women respectively. The mortality from diarrhœa and enteritis in children under two years of age was 34.6% and 32.5% for males and females, while that of the same disease in persons over two years of age was 9.5% and 5.2% for the two sexes. In enteric fever, the mortality was 11.9% and 10.1% for men and women. In the metropolis it was somewhat higher than in the country districts. Pertussis yielded a mortality of 20.9% and 15.2% in men and women respectively, while dysentery had a mortality of 18.9% in men and 27.2% in women.

Constant reference to the table giving the actual numbers of the patients treated for a special condition is necessary to prevent a wrong conception being placed on the mortality rates. Under the heading "illegal operations," it appears in Table 8 that 40% of the patients died. This is quite true, but the total number was only 5, and the statement is liable to mislead the reader.

In Table 9 the statistician groups the diseases and gives the mortality rates for each age period. The information requires supplementation before it can be utilized.

In the succeeding tables, the asylums, infants' homes, hospitals for the insane and various charitable institutions are dealt with, and many pages of figures are devoted to the statistics from each. A great deal of the matter will be of use to practitioners compiling records of mortalities under varying conditions, and collecting information in connexion with institutional treatment of diseases, infirmities and the like. The report can be recommended to them and also to those who are interested in the economic side of institution administration. The Statistician has expended much pains in setting out his figures in an intelligible manner, and he cannot be held responsible for the defects to which we have called attention.

Medico-Legal.

A case of some importance has been decided at Ballarat in the Supreme Court by Mr. Justice A'Beckett and a jury. It appears that Dr. L. C. Lade was in attendance on a woman named Mrs. Elizabeth Brown. The doctor determined in the course of the treatment to exhibit strychnine. He went to a chemist of the name of Mr W. H. Cornell, and dictated to an assistant a prescription in the following terms:—Liq. strych. hyd. 5 minims to ½ oz.; 8 ozs. At the same time he ordered some eucalyptus oil. The medicine was sent to the patient, and was labelled "liquor strychninæ," and bore a poison label. The doctor found this bottle, and having objection to a statement of the contents being placed on the table, removed the label. He remarked to the patient that as he had not made up the medicine himself, he would make enquiries of the chemist whether it was in order. He attempted to telephone to Mr. Cornell but failed. According to his own account he was annoyed with himself for having questioned the accuracy of the dispensing, and later intimated to the patient that it was all right. The patient was given a tablespoonful of the mixture, which proved to be undiluted liq. strych. hyd. B.P., and died shortly afterwards. Both Dr. Lade and Mr. Cornell were committed for trial on the charge of manslaughter. It was held that the chemist had shown negligence in dispensing the medicine, and that the doctor had shown negligence in not having written his prescription. In his defence, Mr. Cornell was able to point out that the poison bottle should have been a danger signal to the doctor. Moreover, the prescription did not contain any reference to the addition of distilled water. His Honor directed that a verdict of not guilty should be returned in the case of Mr. Cornell.

Dr. Lade's defence was based on the fact that he had satisfied himself that Mr. Cornell's assistant had taken down the prescription correctly. His Honour pointed out that had the instructions been followed correctly, no catastrophe would have taken place. A verdict of not guilty was returned.

The following have been nominated for election to the New South Wales Branch of the British Medical Association.

Dr. Kevin Byrne, Ashfield.
Dr. Raymond Balls, Muswellbrook.

SCARLATINA AT ROYAL PARK.

Complaints have been made to the Chief Commissioner of Police by the Sergeant in charge of the lock-up at Royal Park, Victoria, on account of the admission of a military prisoner from the camp at a time when he was suffering from scarlet fever. A suggestion was made by the sergeant that the Military Authority at the camp sent the prisoner to the lock-up for isolation purposes. We understand that the matter has been referred to the Secretary for Defence, who has been asked to give instructions that other arrangements be made for the housing of military prisoners.

Obituary.

ARTHUR CECIL HAMEL ROTHERA.

The University of Melbourne has sustained a severe and lasting injury by the death of Dr. Rothera, the Lecturer on bio-chemistry. In August last he obtained leave of absence from the State to enable him to volunteer as a medical officer. He obtained a commission in the A.A.M.C. as Captain, and in the course of his official duties while at camp he contracted influenza. The course of the disease was severe; pneumonia developed after some weeks' illness, and terminated fatally on October 3, 1915. He was buried with military honours on the following day.

A. C. H. Rothera was born in Nottingham, in the year 1880, and was taken to Canada at an early age. After a diligent and successful school life, he went to Emmanuel College, Cambridge University. In 1902 he took his degree in Arts, and obtained a first-class in the natural science tripos (Part 1). In the following year he took a first-class in Part II (physiology). In 1906 he was appointed Lecturer on Biochemistry at the Melbourne University. In 1910 he obtained the diploma of the Conjoint Board in London. He served as Acting Professor of Physiology in 1911-1912. In 1914 he obtained the degree of Doctor of Science, at the Melbourne University. In addition to his duties as Lecturer on Biochemistry, he undertook in recent years to deliver a course of lectures on pharmacology.

Dr. Rothera had already established for himself a world-wide reputation as a bio-chemist. He possessed a sound knowledge of organic chemistry. The majority of his publications were purely bio-chemical, although he issued a book entitled "Notes on Pharmacology" (1912), which has become very popular among medical students. In 1908 he published the details of a test for acetone. This test, which is known as the sodium nitro-prusside reaction, is used in a large number of medical schools. In the course of 1913 and 1914 he was occupied with Miss Jackson in the study of the chemistry and the physics of milk, and more especially the electrical conductivity of this fluid, and the depression of its freezing point. The contributions on these subjects form the last papers published during his lifetime. There is one paper on the action of pituitary on the mammary gland at present in the press. Dr. Rothera made some observations in connexion with contacts of cerebro-spinal meningitis patients, and communicated the results of his observations to us. Shortly before his death he requested us to postpone the publication of these notes pending further enquiries into the subject.

Dr. Rothera appears to have exercised very considerable personal charm on those with whom he came in contact. He

was modest and unpretentious, and objected to self-advertisement. Beneath the surface of the quiet, unassuming man lay a strength of character and tenacity of purpose which commanded the respect and admiration of those who knew him well. Dr. Rothera is survived by his widow and two young children. The former is of French nationality, and is extremely popular in Melbourne.

JOHN O'BRIEN.

John O'Brien was born at Lismore, county Waterford, Ireland, 36 years ago. Like many other Irishmen, he took the Triple Qualification in Edinburgh, in 1904. He did well, taking the medal in chemistry, medal in anatomy, first prize in theoretical surgery, and second prize in clinical surgery, being held in high esteem by his teachers. After a couple of trips to Australia in the P. and O. Service, he took up lunacy work, entering the Leicester and Rutland Asylum, where he did excellent service, and where his personal qualities drew him hosts of friends. Later he became assistant medical superintendent of the Metropolitan Asylum, Leavesden, where his devotion to duty and agreeable personality again rendered him extremely popular with all his associates. For the last six years he has occupied the positions of assistant superintendent at the Toowoomba Asylum and Goodna Asylum. His end was tragic. A Royal Commission had been appointed to inquire into the management of the Goodna Asylum, largely in response to his suggestions. He was returning by motor car from one of the sessions of this commission, when he met with an accident resulting in concussion, and apparently some cerebral hæmorrhage. He gradually sank and died within two days.

Dr. O'Brien was a most charming and attractive man. He had the faculty of making friends wherever he went. He was the possessor of a delightful tenor voice, with which he was always ready to charm his friends. His passing has come as a severe blow to his many friends.

Special Correspondence.

(From our London Correspondent.)

LONDON LETTER.

Presentation Day at London University.

May 5th was Presentation Day at the University of London. The occasion was celebrated with the customary ceremonial. Sir Henry Miers, who has recently accepted the post of Vice-Chancellor of Victoria University, Manchester, read, for the seventh and last time, the annual report. The public orator delivered the Latin oration, and paid a tribute to those members of the University who had laid down their lives in the cause of patriotism, liberty and justice.

The Earl of Rosebery, Chancellor of the University, delivered, with his customary eloquence, an address which was listened to with the closest attention. He began by contrasting the existing state of things when the greatest conflagration of nations that the world has ever seen was being witnessed with the time, a hundred years since within a few weeks, when sanguine people, as the result of the overthrow of Napoleon, thought that peace was assured for an indefinite period. A quaint little entry in the annual report to the effect that the German Emperor had sent a present of books to the University of London only a few days before the outbreak of war last August, furnished the orator with an excellent text. Whatever our gratitude for the books might be, he said, they were the damned spot that we remember on the hand of Lady Macbeth.

The Psychology of Drudgery.

Professor Adams delivered an interesting lecture, early in May, to the Froebel Society, on "The Psychology of Drudgery." In the course of his address, he said that the plain man would define drudgery as doing what you don't want to do, and the more ingenious would go further and say it was doing what you want not to do, which was a higher grade of degradation. In school, by drudgery they meant uninteresting work. Popularly anything done apathetically was drudgery, but that was not quite true. He had seen people smoking apathetically. Psychologically, drudgery was always marked by lack of purpose in the work itself. If we had a definite purpose in the work it ceased to be drudgery. Work without purpose was work without spirit.

It was pointed out that drudgery varied with the individual. If teachers had a sense of drudgery in their work, then the outlook for the schools was very bad indeed. It was to be hoped that when the war was over there would be a very much greater development of the social sense, the sense that each one had something to do for the community, than had been prevalent in the past.

War Babies.

A report was presented early in June to the Central Executive Committee of the National Society for the Prevention of Cruelty to Children, in the course of which the following important statement is made:—

"With reference to the statements circulated in the country as to the prospect of a large increase in the illegitimate birth-rate, and the many statements made in connexion with what has now come to be called the War Babies discussion, an inquiry has been conducted throughout the Society's organization in England, Ireland, and Wales. A circular letter was sent to every inspector, and replies have been received from all. The result is an unanimous expression of opinion that there has been gross exaggeration in the statements made. Many inspectors say definitely that there is not likely to be any increase in their districts. In many branches not a single case can be traced. In others, only very few cases are known. Generally inspectors express their opinion that the conduct of the troops has been very good. The result of the inquiry is gratifying, and proves that the aspersions cast on the character of women and on the conduct of soldiers have no foundation in fact. The inspectors appear to have made their inquiry in a most careful and thorough manner."

The Rainfall in 1914.

Many well-known scientific men took part in the annual visit to the Royal Observatory at Greenwich on June 5, 1915.

The Astronomer-Royal, in his report to the Board of Visitors, stated that the rainfall for the year ended April 30, 1915, was 24.73 inches, being 0.61 inches greater than the average for the period 1841-1905. The number of rainy days (0.005 inches or over) was 171. September, with 0.73 inches, was the driest month, and December, with 6.02 inches, the wettest.

"It was, in fact," said the Astronomer-Royal, "the wettest December in the Greenwich series, and the three winter months, with 12.86 inches, were the wettest winter in 100 years."

Correspondence.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.

Sir,—I am not qualified to enter into the discussion upon the theory regarding cerebro-spinal meningitis advanced by Dr. Morris Gamble. But I would like to put a question: Seeing that naso-pharyngeal catarrh is quite as prevalent in schools and asylums as it is in camps, why does meningitis appear to start as an epidemic in the latter and not in the former? Until this question can be satisfactorily answered I am inclined to think that there is much to be said for Dr. Gamble's theory.

Yours, etc.,

C. H. SOUTER.

"Annandale," Prospect,
South Australia, Sept. 29, 1915.

Medical Appointments.

Dr. Gaetano Alagna has been appointed Government Medical Officer at Werris Creek, New South Wales.

Dr. T. Armstrong Turner has been appointed Government Medical Officer at Denman, in place of Dr. A. H. Coleman (resigned).

Dr. B. Poulton has been appointed a member of the Board of Management of the Adelaide Hospital, in place of Dr. Hayward (resigned).

Dr. R. Wallace has been appointed Acting Officer of Health for Coburg Town, Victoria, during the absence on leave of Dr. C. P. Dyring.

Dr. Thos. S. Campbell has been appointed Officer of Health for the Rochester Shire, Victoria, in place of Dr. Sandison (resigned).

The following have been appointed medical officers to attend to the destitute poor and aborigines in the various rural districts of South Australia:—Drs. A. Haines, Eric H. Lewis, W. Blair Aitken, W. M. Hunn, Henry H. Formby, Rex G. Plummer, Fred. J. Chapple, J. Francis Souterm, W. M. Sinclair, W. H. Russell, F. J. Douglas, C. W. Purves, John Stewart, A. P. Evelyn O'Leary, C. E. Player, J. W. Yeatman, J. V. McAree, James Riddell, J. J. O'Grady, A. H. Gault, Chas. N. Macquarie, Clive Newland, J. R. Tobin, W. A. Hunter, Frank G. Cowan, F. J. E. Juttner, F. St. John Poole, M. Erichsen, Percival T. S. Cherry, M. E. Goode, J. E. Gribble, Thos. Gibson, S. M. Verco, A. C. Wilton, D. J. Canny, Gilbert Brown, J. S. Proctor, S. L. Dawkins, W. A. V. Drew, Arthur Goode, and W. M. Pickering.

The following have been re-appointed as the advisory committee under the Foods and Drugs Act, 1908:—Dr. W. Ramsay Smith (Chairman Central Board of Health), Dr. Edward Henry Rennie (Professor of Chemistry, Adelaide University), Mr. William Arthur Hargreaves (Government Analyst), Dr. Edward Angas Johnson, Messrs. James William Grasby (grocer), John White (chemist and druggist), and John Williams (aerated water manufacturer).

The following have been appointed junior resident medical officers at the Brisbane Hospital:—

Drs G. H. Cameron, C. F. Robinson, P. J. B. Murphy, G. F. Hill, F. C. Bechtel, and A. J. Reve.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page ix.

Charters Towers District Hospital, Medical Superintendent.

Cue-Day Dawn Hospital, Medical Officer.

Births, Marriages, and Deaths.

DEATH.

AYRES.—On October 1, 1915, at her late residence, "Clovelly," Park Avenue, Gordon, Lucy Charlotte, beloved wife of Dr. Charles Ayres, of Macquarie Street, Sydney.

Diary for the Month.

Oct. 16.—Northern Suburbs Medical Association.
Oct. 19.—N.S.W. Branch, B.M.A., Executive and Finance Committee; Ethics Committee.
Oct. 20.—Vic. Branch, B.M.A., Clinical.
Oct. 20.—W. Aust. Branch, B.M.A., General.
Oct. 20.—Western Med. Assoc. (N.S.W.), Wellington.
Oct. 22.—Q. Branch, B.M.A., Council.
Oct. 26.—N.S.W. Branch, B.M.A., Organization and Science Committee; Medical Politics Committee.
Oct. 26.—Vic. Branch, B.M.A., Eye and Ear Section.
Oct. 27.—Vic. Branch, B.M.A., Council.
Oct. 28.—S. Aust Branch, B.M.A., Monthly.
Oct. 29.—N.S.W. Branch, B.M.A., Ordinary.
Oct. 29.—Melb, Hosp. Clin. Soc.
Oct. 30.—Vic. Branch, B.M.A., Nomination Papers for Election to Offices issued (returnable Nov. 10).
Nov. 4.—North-East. Med. Assoc. (N.S.W.), Grafton.
Nov. 5.—Queensland Branch, B.M.A., Monthly.
Nov. 8.—South Australian Branch, Council.
Nov. 9.—Tasmania Branch, B.M.A., Monthly and Council.
Nov. 10.—Victorian Branch, B.M.A., Monthly.
Nov. 10.—Melbourne Pediatric Society.
Nov. 11.—Victorian Branch, B.M.A., Council.
Nov. 12.—N.S.W. Branch, B.M.A., Clinical.
Nov. 16.—N.S.W. Branch, B.M.A., Executive and Finance Committee, Ethics Committee.

Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Australian Natives Association. Balmain United F.S. Dispensary. Burwood District F.S. Institute. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows Med. Inst., Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Mullumbimby District Friendly Societies. N.S.W. Ambulance Association and Transport Brigade. N. Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Braidwood. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Mudgee. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, and Auburn. F.S. Lodges at Wellington. Newcastle Collieries— Killingworth. Seaham Nos. 1 and 2. West Wallsend.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.